Microdata User Guide

HOUSEHOLD INTERNET USE SURVEY

2002

Statistics Canada Statistique Canada

Canada

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1.0 Introduction

The Internet potentially offers individuals, institutions, small and large businesses, all communities, and all levels of government with new opportunities for learning, interacting, transacting business and developing their social and economic potential[1].

The Household Internet Use Survey (HIUS) was conducted for the sixth time in January 2003 for the Science, Innovation and Electronic Information Division at Statistics Canada. The annual HIUS collects detailed data on the Internet activities of Canadian households. It reports on Canadians using the Internet and measures the extent of their use, location of use, frequency of use and their reasons for using or not using the Internet. In 1999, data on electronic commerce from home were provided. With 2002 data, users can study the growth of e-commerce by tracking orders, purchases or use of Internet that influence acquisition of products or services.

This manual has been produced to facilitate the manipulation of the microdata file of the survey results. For more information on the Household Internet Use Survey, please visit the Statistics Canada website at www.statcan.ca and click on the following links:

1. Our products and services
2. Free publications
3. Communications
4. Internet use in Canada

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[1] Statistics Canada (2000) "Estimates 2000 – 2001", A Report on Plans and Priorities.

2.0 Background

The 2002 Household Internet Use Survey (HIUS) was conducted for the sixth time in January 2003 by Statistics Canada. The survey examined Canadian households' access to the Internet at home, in the workplace and in a number of other locations. The resulting data and analysis sheds light on relationships between usage and location of use, household income, as well as other demographic factors. Additionally, the 2002 survey repeats the detailed module on e-commerce introduced in 1999.

The 2002 survey results showed that:

- After surging during the late 1990s, the growth in Internet use among Canadian households has levelled off;
- In 2002, nearly 8.4 million households or about 69% of the total, contained someone who had used the Internet at some time in their life from one location or another, either from home, work, school or a public library;
- Of these households, 7.5 million households had at least one member who used the Internet regularly, either from home, work, school, a public library or another location, up only 4% from 2001. This rate of growth was far below the gains of 19% in 2001 and 24% in 2000;
- More than 6.3 million households, 51% of all households, had at least one member who regularly used the Internet from home, an increase of only 400,000 or 7% from 2001. This growth was a fraction of the 23% growth in 2001 and the 42% growth in 2000;
- The HIUS data showed continued growth in Internet connections by cable from home. In 2002, an estimated 2.2 million households, or 35%, reported regular Internet access from home through a cable connection. This was up from 1.75 million, or 26%, in 2001. The majority of the remaining households (almost 4 million) connected using a telephone line;
- Canadians still use the Internet from home mostly for e-mail and general browsing. However, growing numbers of households rely on the Internet to obtain information on their health, to research and make travel arrangements and to obtain information from various levels of government. Specialized uses such as electronic banking are also increasing;
- In 2002, 78% of households in the highest income group had a member who used the Internet from home. Five years earlier, 33% of households with the highest incomes used the Internet from home. Households in the second highest income group exhibited the largest increase in Internet use from home in 2002 rising from 56% of households in 2001 to 62% of households in 2002;
- In contrast, among the households in the lowest income group, only 25% had a member who used the Internet from home. However, this proportion had increased five times from only 5% in 1997;
- All provinces showed relatively constant Internet use rates or slight increase in penetration rates from home. Newfoundland and Labrador, Nova Scotia, Ontario and the Western provinces showed slightly increased rates;
- Only three provinces - British Columbia, Ontario and Alberta - had rates of Internet use from home higher than the national average of 51%. About 58% of households in Ontario and British Columbia had someone who used the Internet regularly from home, the highest proportions. They were followed by Alberta at 54%;

- In 2002, 896,000 households indicated that a member of the household either used the Internet infrequently, or had pulled the plug entirely. The size of this group has remained relatively unchanged over the past three years;
- Of these former or infrequent users, 402,000 had a computer at home. Asked why they no longer used the Internet, 32% said they didn't have a need or interest in using it, 22% said it was too costly, and 12% indicated their computer was too old or broken;
- In 2002, about 3.8 million Canadian households had never used the Internet. Most of the households in this group (85%) were either families without children or one-person households. As well, many of these non-users earned below average household income with 47% in the lowest income group.

3.0 Objectives

The main objectives of this survey were to:

- Gain a better understanding of how Canadian households use the Internet;
- Measure the demand for Internet services by Canadian households;
- Identify the types of Internet services used at home;
- Determine the reasons why some households are not using the Internet;
- Determine what factors would influence households to start using the Internet;
- Assess the extent to which former typical user households no longer use the Internet on a regular basis;
- Understand the influence of the Internet on purchases of products and services from home;
- Track the purchase of goods and services, from home, over the Internet for households;
- Determine the extent to which households are concerned about security and privacy issues when engaging the Internet.

In assessing the use of the Internet, we measured the accessibility of the Internet from any location as well as the frequency and intensity of Internet use of Canadian households from home.

4.0 Concepts and Definitions

This chapter outlines concepts and definitions of interest to the users. The concepts and definitions used in the Labour Force Survey (LFS) are described in Section 4.1 while those specific to the Household Internet Use Survey (HIUS) are given in Sections 4.2 and 4.3. Users are referred to Chapter 12.0 of this document for a copy of the actual survey forms used.

4.1 Labour Force Survey Concepts and Definitions

Labour Force Status

Designates the status of the respondent vis-à-vis the labour market: a member of the non-institutional population 15 years of age and over is either **employed, unemployed** or **not in the labour force**.

Employment

Employed persons are those who, during the reference week:

a) did any work[2] at all at a job or business; or
b) had a job but were not at work due to factors such as own illness or disability, personal or family responsibilities, vacation, labour dispute or other reasons (excluding persons on layoff, between casual jobs, and those with a job to start at a future date).

Unemployment

Unemployed persons are those who, during the reference week:

a) were on temporary layoff during the reference week with an expectation of recall and were available for work, or
b) were without work, had actively looked for work in the past four weeks, and were available for work[3]; or
c) had a new job to start within four weeks from the reference week, and were available for work.

[2] Work includes any work for pay or profit, that is, paid work in the context of an employer-employee relationship, or self-employment. It also includes unpaid family work, which is defined as unpaid work contributing directly to the operation of a farm, business or professional practice owned and operated by a related member of the same household. Such activities may include keeping books, selling products, waiting on tables, and so on. Tasks such as housework or maintenance of the home are not considered unpaid family work.

[3] Persons are regarded as available for work if they:

i) reported that they could have worked in the reference week if a suitable job had been offered; or if the reason they could not take a job was of a temporary nature such as: because of own illness or disability, personal or family responsibilities, because they already have a job to start in the near future, or because of vacation (prior to 1997, those on vacation were not considered available).
ii) were full-time students seeking part-time work who also met condition i) above. Full-time students currently attending school and looking for full-time work are not considered to be available for work during the reference week.

Not in the Labour Force

Persons not in the labour force are those who, during the reference week, were unwilling or unable to offer or supply labour services under conditions existing in their labour markets, that is, they were neither employed nor unemployed.

Industry and Occupation

The Labour Force Survey provides information about the occupation and industry attachment of employed and unemployed persons, and of persons not in the labour force who have held a job in the past 12 months. Since 1997, these statistics have been based on the North American Industry Classification System (NAICS) and the Standard Occupational Classification (SOC-91). Prior to 1997, the 1980 Standard Industrial Classification and the 1980 Standard Occupational Classification were used.

Reference Week

The entire calendar week (from Sunday to Saturday) covered by the Labour Force Survey each month. It is usually the week containing the 15th day of the month. The interviews are conducted during the following week, called the Survey Week, and the labour force status determined is that of the reference week.

Full-time Employment

Full-time employment consists of persons who usually work 30 hours or more per week at their main or only job.

Part-time Employment

Part-time employment consists of persons who usually work less than 30 hours per week at their main or only job.

4.2 Household Internet Use Survey Concepts and Definitions

All households: Household count: 12,166,352. The HIUS is a sample survey weighted to the entire count of households in Canada. The yearly figure for the number of households in Canada is projected from the Census of population. From 1999 to 2002 the HIUS used a population projection based on the 1996 Census of population. The 1997 and 1998 files have been re-weighted based on the 1996 Census of population.

Household: Any person or group of persons living in a dwelling. A household may consist of any combination of: one person living alone, one or more families, a group of people who are not related but who share the same dwelling.

Head of household: For the purposes of this report, the head of a household is determined as follows: in families consisting of married couples with or without children, the husband is considered the head; in lone-parent families with unmarried children, the parent is the head; in lone-parent families with married children, the member who is mainly responsible for the maintenance of the family becomes the head; in families where relationships are other than husband-wife or parent-child, normally the eldest in the family is considered the head; and in one-person households, the individual is the head.

Regular user: Households with at least one person that uses the Internet in a typical month, regardless of whether that use was from home, work, school, a public library, or some other location. These users are identified by a household responding **yes** to the question (GUQ02) "Has anyone in your household ever used the Internet (E-mail or world wide web) from home, work, school or any other location?" and responding **yes** to the question (GUQ03) "In a typical month, does anyone in this household use the Internet (from any location)?" A household that uses the Internet regularly is categorised as a regular or typical user.

Non-regular/Ever user: A household responding **yes** to the question (GUQ02) "Has anyone in your household ever used the Internet (E-mail or world wide web) from home, work, school or any other location?" and responding **no** to the question (GUQ03) "In a typical month, does anyone in this household use the Internet (from any location)?" In other words, a household that has used the Internet but does not use it regularly.

Drop-out: A household responding **yes** to the question (GUQ02) "Has anyone in your household ever used the Internet (E-mail or world wide web) from home, work, school or any other location?" responding **no** to the question (GUQ03) "In a typical month, does anyone in this household use the Internet (from any location)?" and responding **yes** to the question (GUQ06) "In the past, has any member of this household used the Internet in a typical month, from any location?" In other words, a household that does not presently use the Internet regularly but did use it regularly in the past.

Never user: A household responding **no** to the question (GUQ02) "Has anyone in your household ever used the Internet (E-mail or world wide web) from home, work, school or any other location?" In other words, a household that has never used the Internet.

Typical month: A typical month refers to a month that is not out of the ordinary for the household. A typical month is always in relation to a certain period of time, usually in the past year. The period of time to be used for defining a typical month was left for the respondent to determine.

Penetration rate: The proportion or percentage of a population adopting a particular activity. A penetration rate answers the question, to what extent has an activity permeated a specified population.

Any location: Includes Internet use from home, work, school, a public library, or some other location and designates a household as only using once, irrespective of use from multiple locations.

Internet: The Internet connects computers to the global network of networks for electronic mail services, file transfers, and information search and retrieval.

Influence and "window shopping": Refers to the effect that the Internet may or may not have had on the purchase of products and services by the household.

Electronic transaction: The sale or purchase of goods or services, whether between businesses, households, individuals, governments and other public or private organizations, conducted over *computer-mediated networks*. The goods and services are ordered over these networks, but the payment and ultimate delivery of the goods or services may be conducted on-line or off-line.

Internet transaction: The sale or purchase of goods or services, whether between businesses, households, individuals, governments and other public or private organizations, conducted over *Internet-protocol based networks.* The goods and services are ordered over these networks, but the payment and ultimate delivery of the goods or services may be conducted on-line or off-line.

Digital products: A variety of products and services that are delivered directly to the customer's computer. Examples of products are music, gameware, computer software or services such as courses taken over the Internet.

Privacy: The household's concern that their personal information is accessible to others on the Internet such as people finding out about the websites the household has visited or the fear of others reading your e-mail.

Security: The household's concern in conducting financial transactions over the Internet such as purchasing products over the Internet using a credit card or banking over the Internet.

Window-shopping: A household that uses the Internet to browse or do comparison-shopping but not necessarily buying.

Surfing - Browsing the Internet: Surfing or browsing the Internet is a commonly used phrase which refers to the activity of a computer user who enters into the global network with a modem to search for and/or retrieve information on various topics. For the purpose of this survey time spent "surfing the net" is considered computer communication.

E-mail: Electronic Mail is a service allowing the transmission of files or text messages between two or more computer stations.

Labour Force Survey: The Canadian Labour Force Survey (LFS) was developed following the Second World War to satisfy a need for reliable and timely data on the labour market. Information was urgently required on the massive labour market changes involved in the transition from a war-time to a peace-time economy. The survey was designed to provide estimates of employment by industry and occupation at the regional as well as the national level. The LFS is the only source of monthly estimates of total employment including the self-employed, full- and part-time employment, and unemployment. It publishes monthly standard labour market indicators such as the unemployment rate, the employment rate and the participation rate. The LFS is a major source of information on the personal characteristics of the working-age population, including age, sex, marital status, education attainment, and family characteristics.

4.3 Labour Force Survey Variable Definitions

FAMTYPE: This variable identifies households by "family type": one-person households, single family households without unmarried children under the age of 18, single family household with unmarried children under the age of 18, and multi-family households. Multi-family households are identified according to the LFS criteria for "economic families": a group of two or more persons who live in the same dwelling and who are related by blood, marriage (including common-law) or adoption. A person living alone or who is related to no one else in the dwelling where he or she lives is classified as an unattached individual.

UNDER18: The LFS collects socio-demographic data such as age, sex, marital status for each household member living in a selected LFS household. The UNDER18 variable is defined by the LFS "age" variable that is collected for all household members and defines households that have household members that are less than 18 years of age and households that do not have members that are less than 18 years of age.

HHSIZE: Data for this variable are collected by the LFS and indicates the household size by household members of all ages for the survey month.

HLFSSTAT: Designates the status of the Head of Household vis-à-vis the labour market: a member of the non-institutional population 15 years of age and over is either employed, unemployed, or not in the labour force.

HAGE: Data for this variable are collected by the LFS and indicates the age (in four ranges) of the Head of Household.

HAGE2: Data for this variable are collected by the LFS and indicates the age (in six ranges) of the Head of Household.

HSEX: Data for this variable are collected by the LFS and indicates the sex of the Head of Household.

HMARSTAT: Data for this variable are collected by the LFS and indicates the marital status reported by the Head of Household. The classification of single is reserved for those who have never married, otherwise, respondents are classified as either widowed or separated/divorced.

HEDUCLEV: Data for this variable are collected by the LFS and indicates the highest level of education attained by the Head of Household. Beginning January 1990 data on primary and secondary education reflects the highest grade completed. This provides a more consistent measure for those who accelerate or fail a grade than did years of school. A question on high school graduation has also been added since it is generally believed that persons who have never completed their secondary education have greater difficulty competing in the labour market. With the new questions, any education that could be counted towards a degree, certificate or diploma from an educational institution is taken as post-secondary education. The change allows more persons into the post-secondary education category. For example, trades programs offered through apprenticeship, vocational schools or private trade schools do not always require high school graduation. Such education is now considered as post-secondary while only primary or secondary would have been recognized prior to 1990. Finally, more information is collected on the type of post-secondary education:

1) Some post-secondary;

2) Trades certificate or diploma from a vocational or apprenticeship training;

3) Non-university certificate or diploma from a community college, general and vocational college (CEGEP), school of nursing, etc.;

4) University certificate below bachelors degree;

5) Bachelors degree; and

6) University degree or certificate above bachelors degree.

HEDUCL: Data for this variable are collected by the LFS and indicates the highest level of education attained by the Head of Household (in three ranges).

HEDUCL2: Data for this variable are collected by the LFS and indicates the highest level of education attained by the Head of Household (in five ranges).

HHLD_ED: Data for this variable are collected by the LFS and indicates the highest level of education attained by any member of the LFS household.

STUDENTF: Data for this variable are collected by the LFS and indicates the presence of a full-time college/university student in the household.

STUDENTP: Data for this variable are collected by the LFS and indicates the presence of a part-time college/university student in the household.

MEM0_5, MEM6_12, MEM13_15, MEM16_17, MEM13_17, MEM18_25: Data for these variables are collected by the LFS and indicates the presence of household members of different age ranges. For example, MEM0_5 indicates the presence of household member(s) aged 0-5 years.

EMPLSTAT: Data for this variable are collected by the LFS and indicates the employment status of household members aged 18 years and older.

1) Employed (if any members are employed): Employed persons are those who, during the reference week did any work for pay or profit, or had a job and were absent from work.

2) Unemployed (if all members are unemployed): Unemployed persons are those who, during reference week were available for work and were either on temporary layoff, had looked for work in the past four weeks or had a job to start within the next four weeks.

3) Not in the labour force (if all members are not in the labour force): Persons not in the labour force are those who, during the reference week, were unwilling or unable to offer or supply labour services under conditions existing in their labour markets, that is, they were neither employed nor unemployed.

4) No member older than 17.

EMPLOYER: Data for this variable are collected by the LFS and indicates whether the household has any members (aged 18 or older) who are employed by an employer. EMPLOYER refers to those who work as employees of a private firm or business or those who work for a local, provincial, or federal government, for a government service or agency, a crown corporation, or a government owned public establishment such as a school or a hospital.

SELF_EMP: Data for this variable are collected by the LFS and indicates whether the household has any members (aged 18 or older) who are self-employed. SELF_EMP includes:

1) Working owners of incorporated businesses: Working owners of an incorporated business, farm or professional practice. This group is further subdivided into “With paid help” and “Without paid help”.

2) Working owners of unincorporated businesses and other self-employed: Working owners of a business, farm or professional practice that is not incorporated and self-employed persons who do not have a business (for example, baby-sitters, newspaper carriers). This group is further subdivided into “With paid help” and “Without paid help”.

3) Unpaid family workers: Persons who work without pay on a farm or in a business or professional practice owned and operated by another family member living in the same dwelling.

CMATAB: A census metropolitan area (CMA) refers to a labour market area with an urbanized core (or continuously built-up area) having at least 100,000 inhabitants. A CMA is generally known by the name of the urban area forming the urbanised core. CMA’s include:

1) municipalities completely or partly inside the urbanized core; and

2) other municipalities, if

    a) at least 40% of the employed labour force living in the municipality works in the urbanized core (commuting flow to the urbanized core), or

    b) at least 25% of the employed labour force working in the municipality lives in the urbanized core (commuting flow from the urbanized core).

The variable CMATAB defines the 15 largest CMAs in Canada. Selected LFS households that are outside these 15 CMAs or are in non-CMA areas are coded as “not applicable”. The variable NEW_CMA is similar to CMATAB except that the selected LFS households in Ottawa-Gatineau are combined and the smaller CMAs are grouped as separate categories for the NEW_CMA variable.

The NEW_CMA variable will also provide a further breakdown at the Census agglomeration. A census agglomeration (CA) is a large urban area (known as the urban core) together with adjacent urban and rural areas (known as urban and rural fringes) which have a high degree of social and economic integration with the urban core. A CA has an urban core population of at least 10,000 based on the previous census

5.0 Survey Methodology

The Household Internet Use Survey (HIUS) was administered in January 2003 to a sub-sample of the dwellings in the Labour Force Survey (LFS) sample, and therefore its sample design is closely tied to that of the LFS. The LFS design is briefly described in Sections 5.1 to 5.4[4]. Sections 5.5 and 5.6 describe how the HIUS departed from the basic LFS design in January 2003.

5.1 Population Coverage

The LFS is a monthly household survey whose sample of individuals is representative of the civilian, non-institutionalised population 15 years of age or older in Canada's ten provinces. Specifically excluded from the survey's coverage are residents of the Yukon, Northwest Territories and Nunavut, persons living on Indian Reserves, full-time members of the Canadian Armed Forces and inmates of institutions. These groups together represent an exclusion of approximately 2% of the population aged 15 or over.

5.2 Sample Design

The LFS has undergone an extensive redesign, culminating in the introduction of the new design at the end of 1994. The LFS sample is based upon a stratified, multi-stage design employing probability sampling at all stages of the design. The design principles are the same for each province. A diagram summarizing the design stages can be found in the document LFS_AppendixA.pdf.

5.2.1 Primary Stratification

Provinces are divided into economic regions (ER) and employment insurance economic regions (EIER). ERs are geographic areas of more or less homogeneous economic structure formed on the basis of federal-provincial agreements. They are relatively stable over time. EIERs are also geographic areas, and are roughly the same size and number as ERs, but they do not share the same definitions. Labour force estimates are produced for the EIERs for the use of Human Resources Development Canada.

The intersections of the two types of regions form the first level of stratification for the LFS. These ER/EIER intersections are treated as primary strata and further stratification is carried out within them (see Section 5.2.3). Note that a third set of regions, census metropolitan areas (CMA), is also respected by stratification in the current LFS design, since each CMA is also an EIER.

5.2.2 Types of Areas

The primary strata (ER/EIER intersections) are further disaggregated into three types of areas: rural, urban, and remote areas. Urban and rural areas are loosely based on the Census definitions of urban and rural, with some exceptions to allow for the formation of strata in some areas. Urban areas include the largest CMAs down to the smallest villages categorized by the 1991 Census as urban (1,000 people or more), while rural areas are made up of areas not designated as urban or remote.

[4] A detailed description of the LFS design is available in the Statistics Canada publication entitled *Methodology of the Canadian Labour Force Survey*, Catalogue no. 71-526-XPB.

All urban areas are further subdivided into two types: those using an apartment list frame and an area frame, as well as those using only an area frame.

Approximately 1% of the LFS population is found in remote areas of provinces which are less accessible to LFS interviewers than other areas. For administrative purposes, this portion of the population is sampled separately through the remote area frame. Some populations, not congregated in places of 25 or more people, are excluded from the sampling frame.

5.2.3 Secondary Stratification

In urban areas with sufficiently large numbers of apartment buildings, the strata are subdivided into apartment frames and area frames. The apartment list frame is a register maintained for the 18 largest cities across Canada. The purpose of this is to ensure better representation of apartment dwellers in the sample as well as to minimize the effect of growth in clusters, due to construction of new apartment buildings. In the major cities, the apartment strata are further stratified into low income strata and regular strata.

Where it is possible and/or necessary, the urban area frame is further stratified into regular strata, high income strata, and low population density strata. Most urban areas fall into the regular urban strata, which, in fact, cover the majority of Canada's population. High income strata are found in major urban areas, while low density urban strata consist of small towns that are geographically scattered.

In rural areas, the population density can vary greatly from relatively high population density areas to low population density areas, resulting in the formation of strata that reflect these variations. The different stratification strategies for rural areas were based not only on concentration of population, but also on cost-efficiency and interviewer constraints.

In each province, remote settlements are sampled proportional to the number of dwellings in the settlement, with no further stratification taking place. Dwellings are selected using systematic sampling in each of the places sampled.

5.2.4 Cluster Delineation and Selection

Households in final strata are not selected directly. Instead, each stratum is divided into clusters, and then a sample of clusters is selected within the stratum. Dwellings are then sampled from selected clusters. Different methods are used to define the clusters, depending on the type of stratum.

Within each urban stratum in the urban area frame, a number of geographically contiguous groups of dwellings, or clusters, are formed based upon 1991 Census counts. These clusters are generally a set of one or more city blocks or block-faces. The selection of a sample of clusters (always six or a multiple of six clusters) from each of these secondary strata represents the first stage of sampling in most urban areas. In some other urban areas, census enumeration areas (EA) are used as clusters. In the low density urban strata, a three stage design is followed. Under this design, two towns within a stratum are sampled, and then 6 or 24 clusters within each town are sampled.

For urban apartment strata, instead of defining clusters, the apartment building is the primary sampling unit. Apartment buildings are sampled from the list frame with probability proportional to the number of units in each building.

Within each of the secondary strata in rural areas, where necessary, further stratification is carried out in order to reflect the differences among a number of socio-economic characteristics within each stratum. Within each rural stratum, six EAs or two or three groups of EAs are sampled as clusters.

5.2.5 Dwelling Selection

In all three types of areas (urban, rural and remote areas) selected clusters are first visited by enumerators in the field and a listing of all private dwellings in the cluster is prepared. From the listing, a sample of dwellings is then selected. The sample yield depends on the type of stratum. For example, in the urban area frame, sample yields are either six or eight dwellings, depending on the size of the city. In the urban apartment frame, each cluster yields five dwellings, while in the rural areas and EA parts of cities, each cluster yields ten dwellings. In all clusters, dwellings are sampled systematically. This represents the final stage of sampling.

5.2.6 Person Selection

Demographic information is obtained for all persons in a household for whom the selected dwelling is the usual place of residence. LFS information is obtained for all civilian household members 15 years of age or older. Respondent burden is minimized for the elderly (age 70 and over) by carrying forward their responses for the initial interview to the subsequent five months in the survey.

5.3 Sample Size

The sample size of eligible persons in the LFS is determined so as to meet the statistical precision requirements for various labour force characteristics at the provincial and sub-provincial level, to meet the requirements of federal, provincial and municipal governments as well as a host of other data users.

The monthly LFS sample consists of approximately 60,000 dwellings. After excluding dwellings found to be vacant, dwellings demolished or converted to non-residential uses, dwellings containing only ineligible persons, dwellings under construction, and seasonal dwellings, about 54,000 dwellings remain which are occupied by one or more eligible persons. From these dwellings, LFS information is obtained for approximately 102,000 civilians aged 15 or over.

5.4 Sample Rotation

The LFS follows a rotating panel sample design, in which households remain in the sample for six consecutive months. The total sample consists of six representative sub-samples or panels, and each month a panel is replaced after completing its six month stay in the survey. Outgoing households are replaced by households in the same or a similar area. This results in a five-sixths month-to-month sample overlap, which makes the design efficient for estimating month-to-month changes. The rotation after six months prevents undue respondent burden for households that are selected for the survey.

Because of the rotation group feature, it is possible to readily conduct supplementary surveys using the LFS design but employing less than the full size sample.

5.5 Modifications to the Labour Force Survey Design for the Household Internet Use Survey

The HIUS used five of the six rotation groups in the January 2003 LFS sample. For the HIUS, the coverage of the LFS was set at the household level. However, unlike the LFS where information is collected for all eligible household members, the HIUS only collected information from one household member who reported about the household.

5.6 Sample Size by Province for the Household Internet Use Survey

The following table shows the number of households in the LFS sampled rotations that were eligible for the HIUS supplement. This table includes households which were non-respondents to the LFS.

Province	**Sample Size**
Newfoundland and Labrador	1,589
Prince Edward Island	1,174
Nova Scotia	2,629
New Brunswick	2,393
Quebec	8,412
Ontario	12,717
Manitoba	3,169
Saskatchewan	3,299
Alberta	4,452
British Columbia	4,295
Canada	**44,129**

6.0 Data Collection

Data collection for the Labour Force Survey (LFS) is carried out each month during the week following the LFS reference week. The reference week is normally the week containing the 15th day of the month.

6.1 Interviewing for the Labour Force Survey

Statistics Canada interviewers are employees hired and trained to carry out the LFS and other household surveys. Each month they contact the sampled dwellings to obtain the required labour force information. Each interviewer contacts approximately 75 dwellings per month.

Dwellings new to the sample are usually contacted through a personal visit using the Computer-assisted personal interview (CAPI). The interviewer first obtains socio-demographic information for each household member and then obtains labour force information for all members aged 15 and over who are not members of the regular armed forces. Provided there is a telephone in the dwelling and permission has been granted, subsequent interviews are conducted by telephone. This is done out of a centralized Computer-assisted telephone interviewing (CATI) unit where cases are assigned randomly to interviewers. As a result, approximately 85% of all households are interviewed by telephone. In these subsequent monthly interviews, the interviewer confirms the socio-demographic information collected in the first month and collects the labour force information for the current month.

In each dwelling, information about all household members is usually obtained from one knowledgeable household member. Such “proxy” reporting, which accounts for approximately 65% of the information collected, is used to avoid the high cost and extended time requirements that would be involved in repeat visits or calls necessary to obtain information directly from each respondent.

If, during the course of the six months that a dwelling normally remains in the sample, an entire household moves out and is replaced by a new household, information is obtained about the new household for the remainder of the six-month period.

At the conclusion of the LFS monthly interviews, interviewers introduce the supplementary survey, if any, to be administered to some or all household members that month.

6.2 Supervision and Quality Control

All LFS interviewers are under the supervision of a staff of senior interviewers who are responsible for ensuring that interviewers are familiar with the concepts and procedures of the LFS and its many supplementary surveys, and also for periodically monitoring their interviewers and reviewing their completed documents. The senior interviewers are, in turn, under the supervision of the LFS program managers, located in each of the Statistics Canada regional offices.

6.3 Non-response to the Labour Force Survey

Interviewers are instructed to make all reasonable attempts to obtain LFS interviews with members of eligible households. For individuals who at first refuse to participate in the LFS, a letter is sent from the Regional Office to the dwelling address stressing the importance of the survey and the household's cooperation. This is followed by a second call (or visit) from the interviewer. For cases in which the timing of the interviewer's call (or visit) is inconvenient, an appointment is arranged to call back at a more convenient time. For cases

in which there is no one home, numerous call backs are made. Under no circumstances are sampled dwellings replaced by other dwellings for reasons of non-response.

Each month, after all attempts to obtain interviews have been made, a small number of non-responding households remain. For households non-responding to the LFS and for which LFS information was obtained in the previous month, this information is brought forward and used as the current month's LFS information. No supplementary survey information is collected for these households.

6.4 Data Collection Modifications for Household Internet Use Survey

Information for the Household Internet Use Survey (HIUS) was obtained from a knowledgeable household member. Upon completion of the Labour Force Survey interview, the interviewer introduced the HIUS and proceeded with the interview with the respondent's permission. The January 2003 HIUS was administered only as a computer-assisted telephone interview.

6.5 Non-response to the Household Internet Use Survey

For households responding to the LFS, the next stage of data collection was to administer the Household Internet Use Survey. In total, 44,129 households were eligible for the supplementary survey; the HIUS interview was completed for 31,650 of these households for a response rate of 71.7%. More detailed information on response rates is presented in Chapter 8.0 (Data Quality).

7.0 Data Processing

The main output of the Household Internet Use Survey (HIUS) is a "clean" microdata file. This chapter presents a brief summary of the processing steps involved in producing this file.

7.1 Data Capture

Responses to survey questions are captured directly by the interviewer at the time of the interview using a computerized questionnaire. The computerized questionnaire reduces processing time and costs associated with data entry, transcription errors, and data transmission. The response data are encrypted to ensure confidentiality and sent via modem to the appropriate Statistics Canada Regional Office. From there they are transmitted over a secure line to Ottawa for further processing.

Some editing is done directly at the time of the interview. Where the information entered is out of range (too large or small) of expected values, or inconsistent with previous entries, the interviewer is prompted, through message screens on the computer, to modify the information. However, for some questions interviewers have the option of bypassing the edits, and of skipping questions if the respondent does not know the answer or refuses to answer. Therefore, the response data are subjected to further edit and imputation processes once they arrive in head office.

7.2 Editing

The editing and imputation phases of processing involve the identification of logically inconsistent or missing information items, and the modification of such conditions. Since the true value of each entry on the questionnaire is not known, the identification of errors can be done only through recognition of obvious inconsistencies. If a value is suspicious but reasonable, the erroneous value will find its way into the surveys' statistics. For that reason emphasis must be placed on quality controls and interviewer training to ensure that errors are both minimal in number and non-systematic in nature.

The first type of error treated was errors in questionnaire flow, where questions which did not apply to the respondent (and should therefore not have been answered) were found to contain answers. In this case a computer edit automatically eliminated superfluous data by following the flow of the questionnaire implied by answers to previous, and in some cases, subsequent questions.

The second type of error treated involved a lack of information in questions which should have been answered. For this type of error, a non-response or "not-stated" code was assigned to the item.

7.3 Coding of Open-ended Questions

A few data items on the questionnaire were recorded by interviewers in an open-ended format. These data items were related to such things as: other locations where household members typically used the Internet, additional reasons for using the Internet, and other types of products/services ordered over the Internet, etc. Using automated coding techniques and manual verification, many of these open-ended responses were recoded back into existing data items on the questionnaire, or in some cases (where sufficient responses were indicated) new derived variable fields were created for the data file.

7.4 Imputation

Imputation is the process that supplies valid values for those variables that have been identified for a change either because of invalid information or because of missing information. The new values are supplied in such a way as to preserve the underlying structure of the data and to ensure that the resulting records will pass all required edits. In other words, the objective is not to reproduce the true microdata values, but rather to establish internally consistent data records that yield good aggregate estimates.

We can distinguish between three types of non-response. Complete non-response is when the respondent does not provide the minimum set of answers[5]. These records are dropped and accounted for in the weighting process (see Chapter 11.0). Item non-response is when the respondent does not provide an answer to one question, but goes on to the next question. These are usually handled using the “not stated” code or they are imputed. Finally, partial non-response is when the respondent provides the minimum set of questions but does not finish the interview. These records can be handled like either complete non-response or multiple item non-response.

In the case of the HIUS, donor imputation was used to fill in missing data for item and partial non-response. Further information on the imputation process is given in Chapter 8.0 (Data Quality).

7.5 Creation of Derived Variables

A number of data items on the microdata file have been derived by combining items on the questionnaire in order to facilitate data analysis. The variable CMATAB, for example, is actually a combination of census metropolitan area (CMA) and census agglomeration (CA). The CAs have been recoded to 0, while the CMAs remain the same.

Other examples are the income quartile (QUARTILE) and quintile (QUINTILE) variables constructed from income information collected during the interview and from information collected for the Canadian Travel Survey conducted on the same sample. An imputation technique was used for records where the variable income was missing (see Section 8.2.4.1 for more details on the method used to impute income).

7.6 Weighting

The principle behind estimation in a probability sample such as the LFS is that each person in the sample "represents", besides himself or herself, several other persons not in the sample. For example, in a simple random 2% sample of the population, each person in the sample represents 50 persons in the population. The same principle also applies to households.

The weighting phase is a step which calculates, for each record, what this number is. This weight appears on the microdata file, and **must** be used to derive meaningful estimates from the survey. For example, if the number of households typically using the Internet from home is to be estimated, it is done by selecting the records referring to those households in the sample with that characteristic and summing the weights entered on those records.

Details of the method used to calculate these weights are presented in Chapter 11.0

5 For the HIUS, a record was deemed a respondent (either complete or partial) if a “YES” response had been obtained to question LUQ02 or to question NUQ01, or failing either of these conditions, then a “YES” or “NO” response had been given for question NUQ03. Otherwise the record was classified as a non-respondent.

7.7 Suppression of Confidential Information

It should be noted that the "Public Use" microdata files described above differ in a number of important respects from the survey "master" files held by Statistics Canada. These differences are the result of actions taken to protect the anonymity of individual survey respondents. Users requiring access to information excluded from the microdata files may purchase custom tabulations. Estimates generated will be released to the user, subject to meeting the guidelines for analysis and release outlined in Chapter 9.0 of this document.

Province - Suppression of Geographic Identifiers

The survey master data file includes explicit geographic identifiers for province, economic region and census metropolitan area. The survey public use microdata files usually do not contain any geographic identifiers below the provincial level. However, since the HIUS is a household based survey, the variable CMATAB is contained on the microdata file.

8.0 Data Quality

8.1 Response Rates

The following table summarizes the response rates to the Labour Force Survey (LFS) and to the Household Internet Use Survey (HIUS) conducted in January 2003.

Province	Household Response Rate for Full LFS* January 2003	Household Response Rate for LFS Rotations 2,3,4,5 and 6*	Household Response Rate to the HIUS**	Number of Respondents in the HIUS
	%			
Newfoundland and Labrador	95.5	95.3	76.9	1,222
Prince Edward Island	95.1	95.5	70.4	827
Nova Scotia	94.0	94.2	73.3	1,927
New Brunswick	93.5	93.9	70.6	1,689
Québec	92.5	92.6	73.1	6,148
Ontario	93.9	94.1	66.6	8,472
Manitoba	95.6	95.8	75.0	2,376
Saskatchewan	95.0	95.3	76.8	2,533
Alberta	94.8	94.8	79.6	3,544
British Columbia	93.6	94.2	67.8	2,912
Canada	**94.0**	**94.2**	**71.7**	**31,650**

* Response rate is the number of LFS responding households as a percentage of the number of eligible households.

** Response rate is the number of households responding to the HIUS as a percentage of the number of households responding to, or imputed by the LFS, in the rotations sampled.,

8.2 Survey Errors

The estimates derived from this survey are based on a sample of households. Somewhat different estimates might have been obtained if a complete census had been taken using the same questionnaire, interviewers, supervisors, processing methods, etc. as those actually used in the survey. The difference between the estimates obtained from the sample and those resulting from a complete count taken under similar conditions is called the <u>sampling error</u> of the estimate.

Errors which are not related to sampling may occur at almost every phase of a survey operation. Interviewers may misunderstand instructions, respondents may make errors in answering questions, the answers may be incorrectly entered on the questionnaire and errors may be introduced in the processing and tabulation of the data. These are all examples of <u>non-sampling errors</u>.

Over a large number of observations, randomly occurring errors will have little effect on estimates derived from the survey. However, errors occurring systematically will contribute to biases in the survey estimates. Considerable time and effort was made to reduce non-sampling errors in the survey. Quality assurance measures were implemented at each step of the data collection and processing cycle to monitor the quality of the data. These measures include the use of highly skilled interviewers, extensive training of interviewers with respect to the survey procedures and questionnaire, observation of interviewers to detect problems of questionnaire design or misunderstanding of instructions, procedures to ensure that data capture errors were minimized and coding and edit quality checks to verify the processing logic.

8.2.1 The Frame

Because the HIUS was a supplement to the LFS, the frame used was the LFS frame. Any non-response to the LFS had an impact on the HIUS frame. Because non-response to the LFS is quite low (usually less than 5%) this impact was minimal. The quality of the sampling variables in the frame was very high. The HIUS sample consisted of five rotation groups from the LFS. No records were dropped due to missing rotation group number or any other type of sampling variable.

Note that the LFS frame excludes about 2% of all households in the ten provinces of Canada. Therefore, the HIUS frame also excludes the same proportion of households in the same geographical area. It is unlikely that this exclusion introduces any significant bias into the survey data.

All variables in the LFS frame are updated monthly.

Some variables on the sampling frame may play a critical role with respect to the software application used in the survey. For example, in the HIUS computer-assisted interviewing (CAI) application, each record must have an accurate stratum, cluster and rotation group codes. Moreover, it requires accurate coding of the time zone field corresponding to province and each of the telephone number fields. Such analysis of the sampling frame provides important feedback on the quality of the frame used in the survey.

At times, duplication of records occurs. This did not happen in January 2003.

8.2.2 Data Collection

Interviewer training consisted of reading the HIUS Procedures Manual, practicing with the HIUS training cases on the laptop computer, and discussing any questions with senior interviewers before the start of the survey. A description of the background and objectives of the survey was provided, as well as a glossary of terms and a set of questions and answers. Interviewers collected HIUS information after the LFS information was collected. The collection period ran from the 19th of January to the 2nd of February, 2003.

8.2.3 Data Processing

During processing of the data, six HIUS records did not match to corresponding records in the LFS. Thus they were coded as out-of-scope and were dropped from further processing. When supplementary survey records do not match to host survey records they must be dropped since a weight cannot be derived for them.

Conversely, 4,898 records in the LFS were found that should have matched to an HIUS record but did not. These records were coded as in-scope, since they were eligible records from the frame which, for one reason or another, did not have corresponding HIUS records. These records were considered to be non-responding records, and were used in the weighting process to adjust for non-response.

Data processing of the HIUS was done in a number of steps including verification, coding, editing, imputation, estimation, confidentiality, etc. Since the data were collected using a CAI instrument, data quality before processing was very high. Very few changes were made to the data during editing. At each step a picture of the output files is taken and an easy verification can be made comparing files at the current and previous step. This greatly improved the data processing stage.

8.2.4 Non-response

A major source of non-sampling errors in surveys is the effect of non-response on the survey results. The extent of non-response varies from partial non-response (failure to answer just one or some questions) to total non-response. Total non-response occurred because the interviewer was either unable to contact the respondent, no member of the household was able to provide the information, the respondent refused to participate in the survey or not enough information was collected in the interview. Total non-response was handled by adjusting the weight of households that responded to the survey to compensate for those that did not respond.

In most cases, partial non-response to the survey occurred when the respondent did not understand or misinterpreted a question, refused to answer a question, or could not recall the requested information.

Item non-response was very low for the HIUS. Most questions had non-response rates which were less than 1.0%.

8.2.4.1 Imputation

Imputation is the process that supplies valid values for those variables that have been identified as requiring a change because of invalid information or because of missing information. The new values are supplied in such a way as to preserve the underlying structure of the data and to ensure that the resulting records will pass all required edits. Imputation was limited in the HIUS to item non-response for a few variables. Total non-respondents were dropped from the data file and accounted for in the weighting process. Imputation was performed for the “income” variable and for some of the e-commerce variables.

A nearest neighbour imputation procedure was used to find donors from which data was transferred to the record requiring imputation (recipients). Donors were selected using a score function. Certain characteristics were compared between records requiring imputation and all plausible donors. Whenever the recipient and the donor shared the same characteristic, a value was added to the score function. The potential donors with the highest scores were then compared by the way of a distance function involving other collected variables. The record with the smallest distance from the recipient was chosen as the donor.

Income Imputation

The HIUS collected information on household income. Respondents were asked for a best numerical estimate of household income and, failing that, for the best categorical estimate from among 11 possible categories (from "less than $5,000" to "$100,000+"). If an estimate was not given, income was coded as missing.

Households in the HIUS for which income was coded as missing were linked to the Canadian Travel Survey (CTS), an LFS supplement also conducted in January 2003. In the CTS, respondents were asked for the best estimate of household income among five broad categories (from "less than $20,000" to "$80,000+"). If an estimate was not given, income was coded as missing.

Overall, 58% of the households reported income as numerical, 21% as an HIUS category, and 3% as a CTS category. For 18% of the households, no income was available from HIUS or CTS.

In order to produce income quartiles, categorical and missing income values were imputed to have numerical values. The imputation process was performed in three steps:

1) income for a given household reporting a categorical HIUS value was substituted by the income of a household which reported a numerical HIUS value and, according to the score and distance functions, shared the most similar characteristics (eg., hourly earnings, geographic region), provided the numerical value was consistent with the HIUS category;

2) income for a given household reporting a categorical CTS value was substituted by the income of a household which reported a numerical HIUS value or whose income had been imputed via step 1) and shared the most similar characteristics, provided the numerical value was consistent with the CTS category; and

3) missing income for a given household was substituted by the income of a household which reported a numerical HIUS value or whose income had been converted to a numerical value via step 1) or 2) and shared the most similar characteristics.

E-commerce Imputation

There are two types of e-commerce variables that were imputed:

1) the number of separate orders that the household placed over the Internet, and

2) the cost of these orders.

These variables were collected separately for two different categories; orders which were placed and paid for directly over the Internet with a credit card and those placed, but not paid for over the Internet. The HIUS first collected the total number of orders and the total cost of orders in each category. The HIUS then asked for the number and the cost of these reported orders which were placed with Canadian companies. In total there were eight e-commerce variables requiring imputation; two types of variables (number of orders, cost) for the two categories of orders (paid over the Internet versus paid through other means) for both Canadian companies and all companies. In order to make the imputation process consistent, two additional variables were also imputed. They were the two introductory questions asking:

1) whether the respondent had placed any orders at all over the Internet which they paid for over the Internet with a credit card, and

2) whether the respondent had placed any orders at all which they did not pay for over the Internet.

Each record with at least one of the ten e-commerce variables of interest with a missing or invalid value was identified as requiring imputation.

The imputation process was performed in three stages. In the first two stages, records were imputed which had one or more of the e-commerce variables missing but also had some of the e-commerce variables reported. The first two stages differed in the pattern of responses. The reported e-commerce variables along with variables from other sections of the questionnaire were used, by way of the score and distance functions, to determine the donors. The pattern of responses and non-response affected the choice of variables included in the score function. The last stage of the imputation dealt with those records which had missing values for all of the e-commerce variables. Information from other sections of the questionnaire was used in the score and distance functions to find the donor.

Only those respondents who were usual users of the Internet from any location were eligible for the e-commerce questions. In total, 58% of the HIUS respondents were eligible for the e-commerce section. Of those eligible, 5.5% needed at least one of the e-commerce fields to be imputed.

8.2.5 Measurement of Sampling Error

Since it is an unavoidable fact that estimates from a sample survey are subject to sampling error, sound statistical practice calls for researchers to provide users with some indication of the magnitude of this sampling error. This section of the documentation outlines the measures of sampling error which Statistics Canada commonly uses and which it urges users producing estimates from this microdata file to use also.

The basis for measuring the potential size of sampling errors is the standard error of the estimates derived from survey results.

However, because of the large variety of estimates that can be produced from a survey, the standard error of an estimate is usually expressed relative to the estimate to which it pertains. This resulting measure, known as the coefficient of variation (CV) of an estimate, is obtained by dividing the standard error of the estimate by the estimate itself and is expressed as a percentage of the estimate.

For example, suppose that, based upon the survey results, one estimates that 30.9% of Canadian households had never used the Internet from home, work, school or any other location in 2002 (GUQ02 = 2, No), and this estimate is found to have a standard error of 0.00360. Then the coefficient of variation of the estimate is calculated as:

$$\left(\frac{0.00360}{0.309}\right) X\ 100\% = 1.2\%$$

There is more information on the calculation of coefficient of variation in Chapter 10.0

9.0 Guidelines for Tabulation, Analysis and Release

This Chapter of the documentation outlines the guidelines to be adhered to by users tabulating, analysing, publishing or otherwise releasing any data derived from the survey microdata files. With the aid of these guidelines, users of microdata should be able to produce the same figures as those produced by Statistics Canada and, at the same time, will be able to develop currently unpublished figures in a manner consistent with these established guidelines.

9.1 Rounding Guidelines

In order that estimates for publication or other release derived from these microdata files correspond to those produced by Statistics Canada, users are urged to adhere to the following guidelines regarding the rounding of such estimates:

a) Estimates in the main body of a statistical table are to be rounded to the nearest hundred units using the normal rounding technique. In normal rounding, if the first or only digit to be dropped is 0 to 4, the last digit to be retained is not changed. If the first or only digit to be dropped is 5 to 9, the last digit to be retained is raised by one. For example, in normal rounding to the nearest 100, if the last two digits are between 00 and 49, they are changed to 00 and the preceding digit (the hundreds digit) is left unchanged. If the last digits are between 50 and 99 they are changed to 00 and the preceding digit is incremented by 1.

b) Marginal sub-totals and totals in statistical tables are to be derived from their corresponding unrounded components and then are to be rounded themselves to the nearest 100 units using normal rounding.

c) Averages, proportions, rates and percentages are to be computed from unrounded components (i.e. numerators and/or denominators) and then are to be rounded themselves to one decimal using normal rounding. In normal rounding to a single digit, if the final or only digit to be dropped is 0 to 4, the last digit to be retained is not changed. If the first or only digit to be dropped is 5 to 9, the last digit to be retained is increased by 1.

d) Sums and differences of aggregates (or ratios) are to be derived from their corresponding unrounded components and then are to be rounded themselves to the nearest 100 units (or the nearest one decimal) using normal rounding.

e) In instances where, due to technical or other limitations, a rounding technique other than normal rounding is used resulting in estimates to be published or otherwise released which differ from corresponding estimates published by Statistics Canada, users are urged to note the reason for such differences in the publication or release document(s).

f) Under no circumstances are unrounded estimates to be published or otherwise released by users. Unrounded estimates imply greater precision than actually exists.

9.2 Sample Weighting Guidelines for Tabulation

The sample design used for the Household Internet Use Survey (HIUS) was not self-weighting. When producing simple estimates, including the production of ordinary statistical tables, users must apply the proper sampling weight.

If proper weights are not used, the estimates derived from the microdata files cannot be considered to be representative of the survey population, and will not correspond to those produced by Statistics Canada.

Users should also note that some software packages may not allow the generation of estimates that exactly match those available from Statistics Canada, because of their treatment of the weight field.

9.3 Definitions of Types of Estimates: Categorical and Quantitative

Before discussing how the HIUS data can be tabulated and analysed, it is useful to describe the two main types of point estimates of population characteristics which can be generated from the microdata file for the HIUS.

9.3.1 Categorical Estimates

Categorical estimates are estimates of the number, or percentage of the surveyed population possessing certain characteristics or falling into some defined category. The number of households which have never used the Internet or the proportion of households for which one or more members have used a computer at home for E-mail are examples of such estimates. An estimate of the number of households possessing a certain characteristic may also be referred to as an estimate of an aggregate.

Examples of Categorical Questions:

Q: How often do members of your household use the Internet at home in a typical month?
R: At least 7 times per week, At least 4 times per month, etc.

Q: What is your best estimate of the total income before deductions, of all household members from all sources during the past 12 months? Was the total household income:
R: Less than $5,000, Between $5,000 - $9,999, etc.

9.3.2 Quantitative Estimates

Quantitative estimates are estimates of totals or of means, medians and other measures of central tendency of quantities based upon some or all of the members of the surveyed population. They also specifically involve estimates of the form $\hat{X} / \hat{Y}$ where $\hat{X}$ is an estimate of surveyed population quantity total and $\hat{Y}$ is an estimate of the number of units in the surveyed population contributing to that total quantity.

An example of a quantitative estimate is the average number of orders for products or services made by Canadian households in 2002 over the Internet and not paid for directly. The numerator is an estimate of the total number of orders placed and not paid for directly and its denominator is the number of households reporting making at least one such order.

Examples of Quantitative Questions:

Q: During the last 12 months, how many separate orders for products or services did your household place but did not pay for directly over the Internet?
R: |_|_|_| Number of orders

Q: During the last 12 months, what was the estimated total cost, in Canadian dollars, of the products and services your household ordered, but did not pay for directly over the Internet?
R: |_|_|_|_|_|_| Total cost rounded to nearest dollar value

9.3.3 Tabulation of Categorical Estimates

Estimates of the number of people with a certain characteristic can be obtained from the microdata file by summing the final weights of all records possessing the characteristic(s) of interest. Proportions and ratios of the form $\hat{X} / \hat{Y}$ are obtained by:

a) summing the final weights of records having the characteristic of interest for the numerator $(\hat{X})$,

b) summing the final weights of records having the characteristic of interest for the denominator $(\hat{Y})$, then

c) divide estimate a) by estimate b) $(\hat{X} / \hat{Y})$.

9.3.4 Tabulation of Quantitative Estimates

Estimates of quantities can be obtained from the microdata file by multiplying the value of the variable of interest by the final weight for each record, then summing this quantity over all records of interest. For example, to obtain an estimate of the total number of orders for products or services by Canadian households in 2002 over the Internet and not paid for directly by credit card, multiply the value reported in question CMQ04 (number of orders not paid over Internet) by the final weight for the record, then sum this value over all records with CMQ02 = 1 (a member of the household has placed an order over the Internet, where payment was made, but not made directly over the Internet using a credit card).

To obtain a weighted average of the form $\hat{X} / \hat{Y}$, the numerator $(\hat{X})$ is calculated as for a quantitative estimate and the denominator $(\hat{Y})$ is

calculated as for a categorical estimate. For example, to estimate the average number of orders for products or services made by Canadian households in 2002 over the Internet and not paid for directly,

a) estimate the total number of orders $(\hat{X})$ as described above,

b) estimate the number of households $(\hat{Y})$ in this category by summing the final weights of all records with CMQ02 = 1, then

c) divide estimate a) by estimate b) to obtain $(\hat{X} / \hat{Y})$.

9.4 Guidelines for Statistical Analysis

The Household Internet Use Survey is based upon a complex sample design, with stratification, multiple stages of selection, and unequal probabilities of selection of respondents. Using data from such complex surveys presents problems to analysts because the survey design and the selection probabilities affect the estimation and variance calculation procedures that should be used. In order for survey estimates and analyses to be free from bias, the survey weights must be used.

While many analysis procedures found in statistical packages allow weights to be used, the meaning or definition of the weight in these procedures differ from that which is appropriate in a sample survey framework, with the result that while in many cases the estimates produced by the packages are correct, the variances that are calculated are poor. Approximate variances for simple estimates such as totals, proportions and ratios (for qualitative variables) can be derived using the accompanying Approximate Sampling Variability Tables.

For other analysis techniques (for example linear regression, logistic regression and analysis of variance), a method exists which can make the variances calculated by the standard packages more meaningful, by incorporating the unequal probabilities of selection. The method rescales the weights so that there is an average weight of 1.

For example, suppose that analysis of all Quebec households is required. The steps to rescale the weights are as follows:

1) select all households from the file who reported PROVINCE = 24, Quebec;

2) calculate the AVERAGE weight for these records by summing the original household weights from the microdata file for these records and then dividing by the number of households who reported PROVINCE = 24 ;

3) for each of these records, calculate a RESCALED weight equal to the original household weight divided by the AVERAGE weight;

4) perform the analysis for these records using the RESCALED weight.

However, because the stratification and clustering of the sample's design are still not taken into account, the variance estimates calculated in this way are likely to be under-estimates.

The calculation of more precise variance estimates requires detailed knowledge of the design of the survey. Such detail cannot be given in this microdata file because

of confidentiality. Variances that take the complete sample design into account can be calculated for many statistics by Statistics Canada on a cost-recovery basis.

9.5 Coefficient of Variation Release Guidelines

Before releasing and/or publishing any estimate from the Household Internet Use Survey, users should first determine the quality level of the estimate. The quality levels are *acceptable*, *marginal* and *unacceptable*. Data quality is affected by both sampling and non-sampling errors as discussed in Chapter 8.0. However for this purpose, the quality level of an estimate will be determined only on the basis of sampling error as reflected by the coefficient of variation as shown in the table below. Nonetheless users should be sure to read Chapter 8.0 to be more fully aware of the quality characteristics of these data.

First, the number of records that contribute to the calculation of the estimate should be determined. If this number is less than 30, the weighted estimate should be considered to be of unacceptable quality.

For weighted estimates based on sample sizes of 30 or more, users should determine the coefficient of variation of the estimate and follow the guidelines below. These quality level guidelines should be applied to weighted rounded estimates.

All estimates can be considered releasable. However, those of marginal or unacceptable quality level must be accompanied by a warning to caution subsequent users.

Quality Level Guidelines

Quality Level of Estimate	**Guidelines**
1) Acceptable	Estimates have: a sample size of 30 or more, and low coefficients of variation in the range of 0.0% - 16.5% No warning is required.
2) Marginal	Estimates have: a sample size of 30 or more, and high coefficients of variation in the range of 16.6% - 33.3%. Estimates should be flagged with the letter M (or some similar identifier). They should be accompanied by a warning to caution subsequent users about the high levels of error, associated with the estimates.
3) Unacceptable	Estimates have: a sample size of less than 30, or very high coefficients of variation in excess of 33.3%. Statistics Canada recommends not to release estimates of unacceptable quality. However, if the user chooses to do so then estimates should be flagged with the letter U (or some similar identifier) and the following warning should accompany the estimates: "Please be warned that these estimates [flagged with the letter U] do not meet Statistics Canada's quality standards. Conclusions based on these data will be unreliable, and most likely invalid."

9.6 Release Cut-off's for the Household Internet Use Survey

The following table provides an indication of the precision of population estimates as it shows the release cut-offs associated with each of the three quality levels presented in the previous section. These cut-offs are derived from the coefficient of variation (CV) tables discussed in Chapter 10.0

For example, the table shows that the quality of a weighted estimate of 5,000 households possessing a given characteristic in Newfoundland and Labrador is marginal.

Note that these cut-offs apply to estimates of population totals only. To estimate ratios, users should not use the numerator value (nor the denominator) in order to find the corresponding quality level. Rule 4 in Section 10.1 and Example 4 in Section 10.1.1 explains the correct procedure to be used for ratios.

Province and Region	**Acceptable CV 0.0% - 16.5%**		**Marginal CV 16.6% - 33.3%**			**Unacceptable CV > 33.3%**	
Newfoundland and Labrador	8,500	& over	2,000	to <	8,500	under	2,000
Prince Edward Island	3,000	& over	1,000	to <	3,000	under	1,000
Nova Scotia	11,000	& over	2,500	to <	11,000	under	2,500
New Brunswick	8,000	& over	2,000	to <	8,000	under	2,000
Quebec	40,000	& over	10,000	to <	40,000	under	10,000
Ontario	37,000	& over	9,000	to <	37,000	under	9,000
Manitoba	9,500	& over	2,500	to <	9,500	under	2,500
Saskatchewan	7,000	& over	2,000	to <	7,000	under	2,000
Alberta	18,500	& over	4,500	to <	18,500	under	4,500
British Columbia	30,500	& over	7,500	to <	30,500	under	7,500
Atlantic Provinces	9,500	& over	2,500	to <	9,500	under	2,500
Prairie Provinces	14,000	& over	3,500	to <	14,000	under	3,500
Canada	**30,500**	**& over**	**7,500**	**to** <	**30,500**	**under**	**7,500**

10.0 Approximate Sampling Variability Tables

In order to supply coefficients of variation (CV) which would be applicable to a wide variety of categorical estimates produced from this microdata file and which could be readily accessed by the user, a set of Approximate Sampling Variability Tables has been produced. These CV tables allow the user to obtain an approximate coefficient of variation based on the size of the estimate calculated from the survey data.

The coefficients of variation are derived using the variance formula for simple random sampling and incorporating a factor which reflects the multi-stage, clustered nature of the sample design. This factor, known as the design effect, was determined by first calculating design effects for a wide range of characteristics and then choosing from among these a conservative value (usually the 75th percentile) to be used in the CV tables which would then apply to the entire set of characteristics.

The table below shows the conservative value of the design effects as well as sample sizes and population counts by province which were used to produce the Approximate Sampling Variability Tables for the Household Internet Use Survey (HIUS).

Province and Region	Design Effect	Sample Size	Population
Newfoundland and Labrador	1.50	1,222	196,298
Prince Edward Island	1.46	827	53,846
Nova Scotia	1.60	1,927	370,971
New Brunswick	1.32	1,689	293,145
Quebec	2.17	6,148	3,114,447
Ontario	1.89	8,472	4,539,838
Manitoba	1.46	2,376	430,709
Saskatchewan	1.31	2,533	382,126
Alberta	1.55	3,544	1,163,694
British Columbia	1.53	2,912	1,621,278
Atlantic Provinces	1.59	5,665	914,260
Prairie Provinces	1.66	8,453	1,976,529
Canada	**2.17**	**31,650**	**12,166,352**

All coefficients of variation in the Approximate Sampling Variability Tables are approximate and, therefore, unofficial. Estimates of actual variance for specific variables may be obtained from Statistics Canada on a cost-recovery basis. Since the approximate CV is conservative, the use of actual variance estimates may cause the estimate to be switched from one quality level to another. For instance a *marginal* estimate could become *acceptable* based on the exact CV calculation.

Remember: If the number of observations on which an estimate is based is less than 30, the weighted estimate is most likely unacceptable and Statistics Canada recommends not to release such an estimate, regardless of the value of the coefficient of variation.

10.1 How to Use the Coefficient of Variation Tables for Categorical Estimates

The following rules should enable the user to determine the approximate coefficients of variation from the Approximate Sampling Variability Tables for estimates of the number, proportion or percentage of the surveyed population possessing a certain characteristic and for ratios and differences between such estimates.

Rule 1: Estimates of Numbers of Households Possessing a Characteristic (Aggregates)

The coefficient of variation depends only on the size of the estimate itself. On the Approximate Sampling Variability Table for the appropriate geographic area, locate the estimated number in the left-most column of the table (headed "Numerator of Percentage") and follow the asterisks (if any) across to the first figure encountered. This figure is the approximate coefficient of variation.

Rule 2: Estimates of Proportions or Percentages of Households Possessing a Characteristic

The coefficient of variation of an estimated proportion or percentage depends on both the size of the proportion or percentage and the size of the total upon which the proportion or percentage is based. Estimated proportions or percentages are relatively more reliable than the corresponding estimates of the numerator of the proportion or percentage, when the proportion or percentage is based upon a sub-group of the population. For example, the <u>proportion</u> of households which have never used computer communications is more reliable than the estimated <u>number</u> of households which have never used computer communications. (Note that in the tables the coefficients of variation decline in value reading from left to right).

When the proportion or percentage is based upon the total population of the geographic area covered by the table, the CV of the proportion or percentage is the same as the CV of the numerator of the proportion or percentage. In this case, Rule 1 can be used.

When the proportion or percentage is based upon a subset of the total population (e.g. those in a particular province or census metropolitan area), reference should be made to the proportion or percentage (across the top of the table) and to the numerator of the proportion or percentage (down the left side of the table).The intersection of the appropriate row and column gives the coefficient of variation.

Rule 3: Estimates of Differences Between Aggregates or Percentages

The standard error of a difference between two estimates is approximately equal to the square root of the sum of squares of each standard error considered separately. That is, the standard error of a difference $\left(\hat{d} = \hat{X}_1 - \hat{X}_2\right)$ is:

$$\sigma_{\hat{d}} = \sqrt{\left(\hat{X}_1\alpha_1\right)^2 + \left(\hat{X}_2\alpha_2\right)^2}$$

where $\hat{X}_1$ is estimate 1, $\hat{X}_2$ is estimate 2, and α_1 and α_2 are the coefficients of variation of $\hat{X}_1$ and $\hat{X}_2$ respectively. The coefficient of variation of $\hat{d}$ is given by

$\sigma_{\hat{d}} / \hat{d}$. This formula is accurate for the difference between separate and uncorrelated characteristics, but is only approximate otherwise.

Rule 4: Estimates of Ratios

In the case where the numerator is a subset of the denominator, the ratio should be converted to a percentage and Rule 2 applied. This would apply, for example, to the case where the denominator is the number of households which have never used the Internet and the numerator is the number of households which have never used the Internet and have a computer at home.

In the case where the numerator is not a subset of the denominator, as for example, the ratio of the number of households in Quebec which use a computer at home for electronic banking in a typical month as compared to the number of households in Ontario which use a computer at home for electronic banking in a typical month, the standard deviation of the ratio of the estimates is approximately equal to the square root of the sum of squares of each coefficient of variation considered separately multiplied by $\hat{R}$. That is, the standard error of a ratio $\left(\hat{R} = \hat{X}_1 / \hat{X}_2\right)$ is:

$$\sigma_{\hat{R}} = \hat{R}\sqrt{\alpha_1^{\ 2} + \alpha_2^{\ 2}}$$

where α_1 and α_2 are the coefficients of variation of $\hat{X}_1$ and $\hat{X}_2$ respectively. The coefficient of variation of $\hat{R}$ is given by $\sigma_{\hat{R}} / \hat{R}$. The formula will tend to overstate the error, if $\hat{X}_1$ and $\hat{X}_2$ are positively correlated and understate the error if $\hat{X}_1$ and $\hat{X}_2$ are negatively correlated.

Rule 5: Estimates of Differences of Ratios

In this case, Rules 3 and 4 are combined. The CVs for the two ratios are first determined using Rule 4, and then the CV of their difference is found using Rule 3.

10.1.1 Examples of Using the Coefficient of Variation Tables for Categorical Estimates

The following examples based on the Household Internet Use Survey 2002 are included to assist users in applying the foregoing rules.

Example 1: Estimates of Numbers of Households Possessing a Characteristic (Aggregates)

Suppose that a user estimates that 3,757,514 households have never used the Internet (GUQ02 = 2, No). How does the user determine the coefficient of variation of this estimate?

1) Refer to the coefficient of variation table for CANADA.

2) The estimated aggregate (3,757,514) does not appear in the left-hand column (the 'Numerator of Percentage' column), so it is necessary to use the figure closest to it, namely 4,000,000.

3) The coefficient of variation for an estimated aggregate is found by referring to the first non-asterisk entry on that row, namely, 1.2%.

HOUSEHOLD INTERNET USE SURVEY - 2002

Approximate Sampling Variability Tables for Canada

ESTIMATED PERCENTAGE

NUMERATOR OF PERCENTAGE ('000)	**0.1%**	**1.0%**	**2.0%**	**5.0%**	**10.0%**	**15.0%**	**…**	**30.0%**	**35.0%**	**40.0%**	**50.0%**	**70.0%**	**90.0%**
1	91.2	90.8	90.3	88.9	86.5	84.1		76.3	73.5	70.7	64.5	50.0	28.8
2	64.5	64.2	63.8	62.9	61.2	59.5		54.0	52.0	50.0	45.6	35.3	20.4
3	52.6	52.4	52.1	51.3	50.0	48.6		44.1	42.5	40.8	37.2	28.8	16.7
4	45.6	45.4	45.1	44.5	43.3	42.0		38.2	36.8	35.3	32.2	25.0	14.4
5	40.8	40.6	40.4	39.8	38.7	37.6		34.1	32.9	31.6	28.8	22.3	12.9
.													
.													
.													
60	****	11.7	11.7	11.5	11.2	10.9		9.9	9.5	9.1	8.3	6.4	3.7
65	****	11.3	11.2	11.0	10.7	10.4		9.5	9.1	8.8	8.0	6.2	3.6
70	****	10.8	10.8	10.6	10.3	10.1		9.1	8.8	8.4	7.7	6.0	3.4
75	****	10.5	10.4	10.3	10.0	9.7		8.8	8.5	8.2	7.4	5.8	3.3
80	****	10.1	10.1	9.9	9.7	9.4		8.5	8.2	7.9	7.2	5.6	3.2
85	****	9.8	9.8	9.6	9.4	9.1		8.3	8.0	7.7	7.0	5.4	3.1
90	****	9.6	9.5	9.4	9.1	8.9		8.0	7.8	7.4	6.8	5.3	3.0
95	****	9.3	9.3	9.1	8.9	8.6		7.8	7.5	7.2	6.6	5.1	3.0
100	****	9.1	9.0	8.9	8.7	8.4		7.6	7.4	7.1	6.4	5.0	2.9
125	****	****	8.1	8.0	7.7	7.5		6.8	6.6	6.3	5.8	4.5	2.6
150	****	****	7.4	7.3	7.1	6.9		6.2	6.0	5.8	5.3	4.1	2.4
200	****	****	6.4	6.3	6.1	5.9		5.4	5.2	5.0	4.6	3.5	2.0
250	****	****	****	5.6	5.5	5.3		4.8	4.7	4.5	4.1	3.2	1.8
300	****	****	****	5.1	5.0	4.9		4.4	4.2	4.1	3.7	2.9	1.7
350	****	****	****	4.8	4.6	4.5		4.1	3.9	3.8	3.4	2.7	1.5
400	****	****	****	4.4	4.3	4.2		3.8	3.7	3.5	3.2	2.5	1.4
450	****	****	****	4.2	4.1	4.0		3.6	3.5	3.3	3.0	2.4	1.4
500	****	****	****	4.0	3.9	3.8		3.4	3.3	3.2	2.9	2.2	1.3
750	****	****	****	*****	3.2	3.1		2.8	2.7	2.6	2.4	1.8	1.1
1000	****	****	****	*****	2.7	2.7		2.4	2.3	2.2	2.0	1.6	0.9
1500	****	****	****	*****	****	2.2		2.0	1.9	1.8	1.7	1.3	0.7
2000	****	****	****	*****	****	****		1.7	1.6	1.6	1.4	1.1	0.6
3000	****	****	****	*****	****	****		1.4	1.3	1.3	1.2	0.9	0.5
4000	****	****	****	*****	****	****		****	1.2	1.1	1.0	0.8	0.5
5000	****	****	****	*****	****	****		****	****	******	0.9	0.7	0.4
6000	****	****	****	*****	****	****		****	****	******	0.8	0.6	0.4
7000	****	****	****	*****	****	****		****	****	******	****	0.6	0.3
8000	****	****	****	*****	****	****		****	****	******	****	0.6	0.3
9000	****	****	****	*****	****	****		****	****	******	****	****	0.3
10000	****	****	****	*****	****	****		****	****	******	****	****	0.3

4) So the approximate coefficient of variation of the estimate is 1.2%. The finding that there are 3,757,514 households (to be rounded according to the rounding guidelines in Section 9.1) which have never used the Internet is publishable with no qualifications.

Example 2 : Estimates of Proportions or Percentages of Households Possessing a Characteristic

Suppose that the user estimates that 470,656 / 3,757,514 = 12.5% of households which have never used the Internet (GUQ02 = 2, No) reported that they have a computer at home (NUQ03 = 1, Yes). How does the user determine the coefficient of variation of this estimate?

1) Refer to the coefficient of variation table for CANADA (see above).

2) Because the estimate is a percentage which is based on a subset of the total population (i.e., households which have never used the Internet), it is necessary to use both the percentage (12.5%) and the numerator portion of the percentage (470,656) in determining the coefficient of variation.

3) The numerator, 470,656, does not appear in the left-hand column (the 'Numerator of Percentage' column) so it is necessary to use the figure closet to it, namely 450,000. Similarly, the percentage estimate does not appear as any of the column headings, so it is necessary to use the figure closest to it, 15.0%.

4) The figure at the intersection of the row and column used, namely 4.0%, is the coefficient of variation to be used.

5) So the approximate coefficient of variation of the estimate is 4.0%. The finding that 12.5% of households which have never used the Internet have a computer at home can be published with no qualifications.

Example 3: Estimates of Differences Between Aggregates or Percentages

Suppose that a user estimates that 1,192,540 / 3,114,447 = 38.3% of households in Quebec (PROVINCE = 24) reported that one or more members of their household use a computer at home for E-mail in a typical month (HUQ11 = 1, Yes), while 2,523,213 / 4,539,838 = 55.6% of households in Ontario (PROVINCE = 35) reported that one or more members of their household use a computer at home for E-mail in a typical month (HUQ11 = 1, Yes). How does the user determine the coefficient of variation of the difference between these two estimates?

1) Using the QUEBEC and ONTARIO coefficient of variation tables in the same manner as described in Example 1 gives the CV of the estimate for households in Quebec as 2.7%, and the CV of the estimate for households in Ontario as 1.0%.

HOUSEHOLD INTERNET USE SURVEY - 2002

Approximate Sampling Variability Tables for Quebec

ESTIMATED PERCENTAGE

NUMERATOR OF PERCENTAGE ('000)	0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	…	30.0%	35.0%	40.0%	50.0%	70.0%	90.0%
1	104.7	104.2	103.7	102.1	99.4	96.6		87.6	84.4	81.1	74.1	57.4	33.1
2	74.0	73.7	73.3	72.2	70.3	68.3		62.0	59.7	57.4	52.4	40.6	23.4
3	60.4	60.2	59.9	58.9	57.4	55.8		50.6	48.8	46.8	42.8	33.1	19.1
4	*****	52.1	51.8	51.0	49.7	48.3		43.8	42.2	40.6	37.0	28.7	16.6
5	*****	46.6	46.4	45.7	44.4	43.2		39.2	37.8	36.3	33.1	25.7	14.8
.													
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60	*****	*****	13.4	13.2	12.8	12.5		11.3	10.9	10.5	9.6	7.4	4.3
65	*****	*****	*****	12.7	12.3	12.0		10.9	10.5	10.1	9.2	7.1	4.1
70	*****	*****	*****	12.2	11.9	11.5		10.5	10.1	9.7	8.9	6.9	4.0
75	*****	*****	*****	11.8	11.5	11.2		10.1	9.8	9.4	8.6	6.6	3.8
80	*****	*****	*****	11.4	11.1	10.8		9.8	9.4	9.1	8.3	6.4	3.7
85	*****	*****	*****	11.1	10.8	10.5		9.5	9.2	8.8	8.0	6.2	3.6
90	*****	*****	*****	10.8	10.5	10.2		9.2	8.9	8.6	7.8	6.0	3.5
95	*****	*****	*****	10.5	10.2	9.9		9.0	8.7	8.3	7.6	5.9	3.4
100	*****	*****	*****	10.2	9.9	9.7		8.8	8.4	8.1	7.4	5.7	3.3
125	*****	*****	*****	9.1	8.9	8.6		7.8	7.6	7.3	6.6	5.1	3.0
150	*****	*****	*****	8.3	8.1	7.9		7.2	6.9	6.6	6.0	4.7	2.7
200	*****	*****	*****	******	7.0	6.8		6.2	6.0	5.7	5.2	4.1	2.3
250	*****	*****	*****	******	6.3	6.1		5.5	5.3	5.1	4.7	3.6	2.1
300	*****	*****	*****	******	5.7	5.6		5.1	4.9	4.7	4.3	3.3	1.9
350	*****	*****	*****	******	******	5.2		4.7	4.5	4.3	4.0	3.1	1.8
400	*****	*****	*****	******	******	4.8		4.4	4.2	4.1	3.7	2.9	1.7
450	*****	*****	*****	******	******	4.6		4.1	4.0	3.8	3.5	2.7	1.6
500	*****	*****	*****	******	******	******		3.9	3.8	3.6	3.3	2.6	1.5
750	*****	*****	*****	******	******	******		3.2	3.1	3.0	2.7	2.1	1.2
1000	*****	*****	*****	******	******	******		******	2.7	2.6	2.3	1.8	1.0
1500	*****	*****	*****	******	******	******		******	******	******	1.9	1.5	0.9
2000	*****	*****	*****	******	******	******		******	******	******	******	1.3	0.7

NOTE: POUR UTILISER CES TABLEAUX, VEUILLEZ RÉFÉRER À LA DOCUMENTATION RELIÉE AUX MICRO-DONNÉES

HOUSEHOLD INTERNET USE SURVEY - 2002

Approximate Sampling Variability Tables for Ontario

NUMERATOR OF PERCENTAGE

ESTIMATED PERCENTAGE

('000)	0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	…	30.0%	35.0%	40.0%	50.0%	70.0%	90.0%
1	100.5	100.0	99.5	98.0	95.4	92.7		84.1	81.1	77.9	71.1	55.1	31.8
2	71.1	70.7	70.4	69.3	67.4	65.5		59.5	57.3	55.1	50.3	38.9	22.5
3	58.0	57.8	57.5	56.6	55.1	53.5		48.6	46.8	45.0	41.0	31.8	18.4
4	50.2	50.0	49.8	49.0	47.7	46.3		42.1	40.5	38.9	35.5	27.5	15.9
5	*****	44.7	44.5	43.8	42.7	41.5		37.6	36.3	34.8	31.8	24.6	14.2
.													
.													
.													
60	*****	*****	12.8	12.7	12.3	12.0		10.9	10.5	10.1	9.2	7.1	4.1
65	*****	*****	12.3	12.2	11.8	11.5		10.4	10.1	9.7	8.8	6.8	3.9
70	*****	*****	11.9	11.7	11.4	11.1		10.1	9.7	9.3	8.5	6.6	3.8
75	*****	*****	11.5	11.3	11.0	10.7		9.7	9.4	9.0	8.2	6.4	3.7
80	*****	*****	11.1	11.0	10.7	10.4		9.4	9.1	8.7	7.9	6.2	3.6
85	*****	*****	10.8	10.6	10.3	10.1		9.1	8.8	8.4	7.7	6.0	3.4
90	*****	*****	10.5	10.3	10.1	9.8		8.9	8.5	8.2	7.5	5.8	3.4
95	*****	*****	*****	10.1	9.8	9.5		8.6	8.3	8.0	7.3	5.7	3.3
100	*****	*****	*****	9.8	9.5	9.3		8.4	8.1	7.8	7.1	5.5	3.2
125	*****	*****	*****	8.8	8.5	8.3		7.5	7.3	7.0	6.4	4.9	2.8
150	*****	*****	*****	8.0	7.8	7.6		6.9	6.6	6.4	5.8	4.5	2.6
200	*****	*****	*****	6.9	6.7	6.6		5.9	5.7	5.5	5.0	3.9	2.2
250	*****	*****	*****	*****	6.0	5.9		5.3	5.1	4.9	4.5	3.5	2.0
300	*****	*****	*****	*****	5.5	5.4		4.9	4.7	4.5	4.1	3.2	1.8
350	*****	*****	*****	*****	5.1	5.0		4.5	4.3	4.2	3.8	2.9	1.7
400	*****	*****	*****	*****	4.8	4.6		4.2	4.1	3.9	3.6	2.8	1.6
450	*****	*****	*****	*****	4.5	4.4		4.0	3.8	3.7	3.4	2.6	1.5
500	*****	*****	*****	*****	*****	4.1		3.8	3.6	3.5	3.2	2.5	1.4
750	*****	*****	*****	*****	*****	*****		3.1	3.0	2.8	2.6	2.0	1.2
1000	*****	*****	*****	*****	*****	*****	*****	2.7	2.6	2.5	2.2	1.7	1.0
1500	*****	*****	*****	*****	*****	*****	*****	*****	2.1	2.0	1.8	1.4	0.8
2000	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	1.6	1.2	0.7
3000	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	1.0	0.6
4000	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	0.5

NOTE: POUR UTILISER CES TABLEAUX, VEUILLEZ RÉFÉRER À LA DOCUMENTATION RELIÉE AUX MICRO-DONNÉES

2) Using Rule 3, the standard error of a difference $\left(\hat{d} = \hat{X}_1 - \hat{X}_2\right)$ is:

$$\sigma_{\hat{d}} = \sqrt{\left(\hat{X}_1\alpha_1\right)^2 + \left(\hat{X}_2\alpha_2\right)^2}$$

where $\hat{X}_1$ is estimate 1 (Quebec), $\hat{X}_2$ is estimate 2 (Ontario), and α_1 and α_2 are the coefficients of variation of $\hat{X}_1$ and $\hat{X}_2$ respectively.

That is, the standard error of the difference $\hat{d} =$ 0.383 - 0.556 = 0.173 is:

$$\sigma_{\hat{d}} = \sqrt{[(0.383)(0.027)]^2 + [(0.556)(0.010)]^2}$$
$$= \sqrt{(0.0001069) + (0.0000309)}$$
$$= 0.0117$$

3) The coefficient of variation of $\hat{d}$ is given by

$\sigma_{\hat{d}}$ / $\hat{d}$ = 0.0117 / 0.173 = 0.068

4) So the approximate coefficient of variation of the difference between the estimates is 6.8%. This estimate is publishable with no qualifications.

Example 4: Estimates of Ratios

Suppose that the user estimates that 1,192,540 households in Quebec reported that one or more members of their household use a computer at home for E-mail in a typical month (HUQ11 = 1, Yes), while 2,523,213 households in Ontario reported that one or more members of their household use a computer at home for E-mail in a typical month (HUQ11 = 1, Yes). The user is interested in comparing the estimate of Quebec households versus that of Ontario households in the form of a ratio. How does the user determine the coefficient of variation of this estimate?

1) First of all, this estimate is a ratio estimate, where the numerator of the estimate ($\hat{X}_1$) is the number of households in Quebec which reported that one or more members of their household use a computer at home for E-mail in a typical month. The denominator of the estimate ($\hat{X}_2$) is the number of households in Ontario which reported that one or more members of their household use a computer at home for E-mail in a typical month.

2) Refer to the coefficient of variation tables for QUEBEC and ONTARIO (see above).

3) The numerator of this ratio estimate is 1,192,540. The figure closest to it is 1,000,000. The coefficient of variation for this estimate is found by referring to the first non-asterisk entry on that row in the QUEBEC table, namely, 2.7%.

4) The denominator of this ratio estimate is 2,523,213. The figure closest to it is 3,000,000. The coefficient of variation for this estimate is found by referring to the first non-asterisk entry on that row in the ONTARIO table, namely, 1.0%.

5) So the approximate coefficient of variation of the ratio estimate is given by Rule 4, which is:

$$\alpha_{\hat{R}} = \sqrt{\alpha_1^{\,2} + \alpha_2^{\,2}}$$

where α_1 and α_2 are the coefficients of variation of $\hat{X}_1$ and $\hat{X}_2$ respectively.

That is:

$$\alpha_{\hat{R}} = \sqrt{(0.027)^2 + (0.010)^2}$$
$$= \sqrt{0.000729 + 0.0001}$$
$$= 0.029$$

The obtained ratio of Quebec versus Ontario households which reported that one or more members of their household use a computer at home for E-mail in a typical month is 1,192,540 / 2,523,213 which is 0.47:1 (to be rounded according to the rounding guidelines in Section 9.1). The coefficient of variation of this estimate is 2.9%, which is releasable with no qualifications.

10.2 How to Use the Coefficient of Variation Tables to Obtain Confidence Limits

Although coefficients of variation are widely used, a more intuitively meaningful measure of sampling error is the confidence interval of an estimate. A confidence interval constitutes a statement on the level of confidence that the true value for the population lies within a specified range of values. For example a 95% confidence interval can be described as follows:

If sampling of the population is repeated indefinitely, each sample leading to a new confidence interval for an estimate, then in 95% of the samples the interval will cover the true population value.

Using the standard error of an estimate, confidence intervals for estimates may be obtained under the assumption that under repeated sampling of the population, the various estimates obtained for a population characteristic are normally distributed about the true population value. Under this assumption, the chances are about 68 out of 100 that the difference between a sample estimate and the true population value would be less than one standard error, about 95 out of 100 that the difference would be less than two standard errors, and about 99 out of 100 that the differences would be less than three standard errors. These different degrees of confidence are referred to as the confidence levels.

Confidence intervals for an estimate, $\hat{X}$ are generally expressed as two numbers, one below the estimate and one above the estimate, as $(\hat{X} - k,\ \hat{X} + k)$ where k is determined depending upon the level of confidence desired and the sampling error of the estimate.

Confidence intervals for an estimate can be calculated directly from the Approximate Sampling Variability Tables by first determining from the appropriate table the coefficient of variation of the estimate $\hat{X}$, and then using the following formula to convert to a confidence interval $(CI_{\hat{x}})$:

$$CI_{\hat{x}} = \left(\hat{X} - t\hat{X}\alpha_{\hat{x}},\ \hat{X} + t\hat{X}\alpha_{\hat{x}}\right)$$

where $\alpha_{\hat{X}}$ is the determined coefficient of variation of $\hat{X}$, and

t = 1 if a 68% confidence interval is desired;
t = 1.6 if a 90% confidence interval is desired;
t = 2 if a 95% confidence interval is desired;
t = 2.6 if a 99% confidence interval is desired.

Note: Release guidelines which apply to the estimate also apply to the confidence interval. For example, if the estimate is not releasable, then the confidence interval is not releasable either.

10.2.1 Example of Using the Coefficient of Variation Tables to Obtain Confidence Limits

A 95% confidence interval for the estimated proportion of households which have never used the Internet and have a computer at home (from Example 2, Section 10.1.1) would be calculated as follows:

$\hat{X}$ = 12.5% (or expressed as a proportion 0.125)

t = 2

$\alpha_{\hat{X}}$ = 4.0% (0.040 expressed as a proportion) is the coefficient of variation of this estimate as determined from the tables.

$CI_{\hat{x}}$ = {0.125 - (2) (0.125) (0.040), 0.125 + (2) (0.125) (0.040)}
$CI_{\hat{x}}$ = {0.125 - 0.010, 0.125 + 0.010}
$CI_{\hat{x}}$ = {0.115, 0.135}

With 95% confidence it can be said that between 11.5% and 13.5% of households which have never used the Internet reported that they have a computer at home.

10.3 How to Use the Coefficient of Variation Tables to Do a T-test

Standard errors may also be used to perform hypothesis testing, a procedure for distinguishing between population parameters using sample estimates. The sample estimates can be numbers, averages, percentages, ratios, etc. Tests may be performed at various levels of significance, where a level of significance is the probability of concluding that the characteristics are different when, in fact, they are identical.

Let $\hat{X}_1$ and $\hat{X}_2$ be sample estimates for two characteristics of interest. Let the standard error on the difference $\hat{X}_1$ - $\hat{X}_2$ be $\sigma_{\hat{d}}$.

If $t = \frac{\hat{X}_1 - \hat{X}_2}{\sigma_{\hat{d}}}$

is between -2 and 2, then no conclusion about the difference between the characteristics is justified at the 5% level of significance. If however, this ratio is smaller than -2 or larger than +2, the observed difference is significant at the 0.05 level. That is to say that the difference between the estimates is significant.

10.3.1 Example of Using the Coefficient of Variation Tables to Do a T-test

Let us suppose that the user wishes to test, at a 5% level of significance, the hypothesis that there is no difference between the proportion of households in Quebec which reported that one or more members of their household use a computer at home for E-mail in a typical month, and the proportion of households in Ontario which reported that one or more members of their household use a computer at home for E-mail in a typical month. From Example 3, Section 10.1.1, the standard error of the difference between these two estimates was found to be 0.0117.

$$t = \frac{\hat{X}_1 - \hat{X}_2}{\sigma_{\hat{d}}} = \frac{0.383 - 0.556}{0.0117} = \frac{-0.173}{0.0117} = -14.8$$

Since t = -14.8 is less than -2, it must be concluded that there is a significant difference between the two estimates at the 0.05 level of significance.

10.4 Coefficients of Variation for Quantitative Estimates

For quantitative estimates, special tables would have to be produced to determine their sampling error. Since most of the variables for the Household Internet Use Survey are primarily categorical in nature, this has not been done.

As a general rule, however, the coefficient of variation of a quantitative total will be larger than the coefficient of variation of the corresponding category estimate (i.e., the estimate of the number of households contributing to the quantitative estimate). If the corresponding category estimate is not releasable, the quantitative estimate will not be either. For example, the coefficient of variation of the total number of orders for products or services would be greater than the coefficient of variation of the corresponding proportion of households that placed an order for products or services. Hence, if the coefficient of variation of the proportion is not releasable, then the coefficient of variation of the corresponding quantitative estimate will also not be releasable.

Coefficients of variation of such estimates can be derived as required for a specific estimate using a technique known as pseudo replication. This involves dividing the records on the microdata files into subgroups (or replicates) and determining the variation in the estimate from replicate to replicate. Users wishing to derive coefficients of variation for quantitative estimates may contact Statistics Canada for advice on the allocation of records to appropriate replicates and the formulae to be used in these calculations.

10.5 Coefficient of Variation Tables

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Approximate Sampling Variability Tables for Newfoundland and Labrador

NUMERATOR OF PERCENTAGE ('000)	ESTIMATED PERCENTAGE 0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	50.0%	70.0%	90.0%
1	********	48.7	48.4	47.7	46.4	45.1	43.8	42.4	40.9	39.5	37.9	34.6	26.8	15.5
2	********	********	34.3	33.7	32.8	31.9	30.9	30.0	28.9	27.9	26.8	24.5	19.0	10.9
3	********	********	28.0	27.5	26.8	26.0	25.3	24.5	23.6	22.8	21.9	20.0	15.5	8.9
4	********	********	********	23.8	23.2	22.6	21.9	21.2	20.5	19.7	19.0	17.3	13.4	7.7
5	********	********	********	21.3	20.8	20.2	19.6	19.0	18.3	17.6	17.0	15.5	12.0	6.9
6	********	********	********	19.5	19.0	18.4	17.9	17.3	16.7	16.1	15.5	14.1	10.9	6.3
7	********	********	********	18.0	17.5	17.1	16.5	16.0	15.5	14.9	14.3	13.1	10.1	5.8
8	********	********	********	16.9	16.4	16.0	15.5	15.0	14.5	13.9	13.4	12.2	9.5	5.5
9	********	********	********	15.9	15.5	15.0	14.6	14.1	13.6	13.2	12.6	11.5	8.9	5.2
10	********	********	********	********	14.7	14.3	13.8	13.4	12.9	12.5	12.0	10.9	8.5	4.9
11	********	********	********	********	14.0	13.6	13.2	12.8	12.3	11.9	11.4	10.4	8.1	4.7
12	********	********	********	********	13.4	13.0	12.6	12.2	11.8	11.4	10.9	10.0	7.7	4.5
13	********	********	********	********	12.9	12.5	12.1	11.8	11.4	10.9	10.5	9.6	7.4	4.3
14	********	********	********	********	12.4	12.1	11.7	11.3	10.9	10.5	10.1	9.2	7.2	4.1
15	********	********	********	********	12.0	11.6	11.3	10.9	10.6	10.2	9.8	8.9	6.9	4.0
16	********	********	********	********	11.6	11.3	10.9	10.6	10.2	9.9	9.5	8.7	6.7	3.9
17	********	********	********	********	11.3	10.9	10.6	10.3	9.9	9.6	9.2	8.4	6.5	3.8
18	********	********	********	********	10.9	10.6	10.3	10.0	9.6	9.3	8.9	8.2	6.3	3.6
19	********	********	********	********	10.7	10.4	10.0	9.7	9.4	9.1	8.7	7.9	6.1	3.6
20	********	********	********	********	********	10.1	9.8	9.5	9.2	8.8	8.5	7.7	6.0	3.5
21	********	********	********	********	********	9.8	9.6	9.2	8.9	8.6	8.3	7.6	5.8	3.4
22	********	********	********	********	********	9.6	9.3	9.0	8.7	8.4	8.1	7.4	5.7	3.3
23	********	********	********	********	********	9.4	9.1	8.8	8.5	8.2	7.9	7.2	5.6	3.2
24	********	********	********	********	********	9.2	8.9	8.7	8.4	8.1	7.7	7.1	5.5	3.2
25	********	********	********	********	********	9.0	8.8	8.5	8.2	7.9	7.6	6.9	5.4	3.1
30	********	********	********	********	********	********	8.0	7.7	7.5	7.2	6.9	6.3	4.9	2.8
35	********	********	********	********	********	********	7.4	7.2	6.9	6.7	6.4	5.8	4.5	2.6
40	********	********	********	********	********	********	********	6.7	6.5	6.2	6.0	5.5	4.2	2.4
45	********	********	********	********	********	********	********	6.3	6.1	5.9	5.7	5.2	4.0	2.3
50	********	********	********	********	********	********	********	********	5.8	5.6	5.4	4.9	3.8	2.2
55	********	********	********	********	********	********	********	********	5.5	5.3	5.1	4.7	3.6	2.1
60	********	********	********	********	********	********	********	********	********	5.1	4.9	4.5	3.5	2.0
65	********	********	********	********	********	********	********	********	********	4.9	4.7	4.3	3.3	1.9
70	********	********	********	********	********	********	********	********	********	********	4.5	4.1	3.2	1.8
75	********	********	********	********	********	********	********	********	********	********	4.4	4.0	3.1	1.8
80	********	********	********	********	********	********	********	********	********	********	********	3.9	3.0	1.7
85	********	********	********	********	********	********	********	********	********	********	********	3.8	2.9	1.7
90	********	********	********	********	********	********	********	********	********	********	********	3.6	2.8	1.6
95	********	********	********	********	********	********	********	********	********	********	********	3.6	2.7	1.6
100	********	********	********	********	********	********	********	********	********	********	********	********	2.7	1.5
125	********	********	********	********	********	********	********	********	********	********	********	********	2.4	1.4
150	********	********	********	********	********	********	********	********	********	********	********	********	********	1.3

NOTE: FOR CORRECT USAGE OF THESE TABLES PLEASE REFER TO MICRODATA DOCUMENTATION

HOUSEHOLD INTERNET USE SURVEY - 2002

Approximate Sampling Variability Tables for Prince Edward Island

NUMERATOR OF PERCENTAGE ('000)	ESTIMATED PERCENTAGE 0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	50.0%	70.0%	90.0%
1	********	********	30.3	29.8	29.0	28.2	27.4	26.5	25.6	24.7	23.7	21.6	16.8	9.7
2	********	********	********	21.1	20.5	19.9	19.3	18.7	18.1	17.4	16.8	15.3	11.8	6.8
3	********	********	********	********	16.8	16.3	15.8	15.3	14.8	14.2	13.7	12.5	9.7	5.6
4	********	********	********	********	14.5	14.1	13.7	13.2	12.8	12.3	11.8	10.8	8.4	4.8
5	********	********	********	********	13.0	12.6	12.2	11.8	11.4	11.0	10.6	9.7	7.5	4.3
6	********	********	********	********	********	11.5	11.2	10.8	10.4	10.1	9.7	8.8	6.8	3.9
7	********	********	********	********	********	10.7	10.3	10.0	9.7	9.3	9.0	8.2	6.3	3.7
8	********	********	********	********	********	10.0	9.7	9.4	9.0	8.7	8.4	7.6	5.9	3.4
9	********	********	********	********	********	********	9.1	8.8	8.5	8.2	7.9	7.2	5.6	3.2
10	********	********	********	********	********	********	8.7	8.4	8.1	7.8	7.5	6.8	5.3	3.1
11	********	********	********	********	********	********	********	8.0	7.7	7.4	7.1	6.5	5.1	2.9
12	********	********	********	********	********	********	********	7.6	7.4	7.1	6.8	6.2	4.8	2.8
13	********	********	********	********	********	********	********	7.3	7.1	6.8	6.6	6.0	4.6	2.7
14	********	********	********	********	********	********	********	********	6.8	6.6	6.3	5.8	4.5	2.6
15	********	********	********	********	********	********	********	********	6.6	6.4	6.1	5.6	4.3	2.5
16	********	********	********	********	********	********	********	********	6.4	6.2	5.9	5.4	4.2	2.4
17	********	********	********	********	********	********	********	********	********	6.0	5.7	5.2	4.1	2.3
18	********	********	********	********	********	********	********	********	********	5.8	5.6	5.1	3.9	2.3
19	********	********	********	********	********	********	********	********	********	********	5.4	5.0	3.8	2.2
20	********	********	********	********	********	********	********	********	********	********	5.3	4.8	3.7	2.2
21	********	********	********	********	********	********	********	********	********	********	5.2	4.7	3.7	2.1
22	********	********	********	********	********	********	********	********	********	********	********	4.6	3.6	2.1
23	********	********	********	********	********	********	********	********	********	********	********	4.5	3.5	2.0
24	********	********	********	********	********	********	********	********	********	********	********	4.4	3.4	2.0
25	********	********	********	********	********	********	********	********	********	********	********	4.3	3.4	1.9
30	********	********	********	********	********	********	********	********	********	********	********	********	3.1	1.8
35	********	********	********	********	********	********	********	********	********	********	********	********	2.8	1.6
40	********	********	********	********	********	********	********	********	********	********	********	********	********	1.5
45	********	********	********	********	********	********	********	********	********	********	********	********	********	1.4

NOTE: FOR CORRECT USAGE OF THESE TABLES PLEASE REFER TO MICRODATA DOCUMENTATION

HOUSEHOLD INTERNET USE SURVEY - 2002

Approximate Sampling Variability Tables for Nova Scotia

NUMERATOR OF PERCENTAGE ('000)	ESTIMATED PERCENTAGE 0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	50.0%	70.0%	90.0%
1	********	55.1	54.8	54.0	52.5	51.0	49.5	47.9	46.3	44.6	42.9	39.1	30.3	17.5
2	********	38.9	38.7	38.2	37.1	36.1	35.0	33.9	32.7	31.6	30.3	27.7	21.4	12.4
3	********	31.8	31.6	31.2	30.3	29.5	28.6	27.7	26.7	25.8	24.8	22.6	17.5	10.1
4	****************		27.4	27.0	26.3	25.5	24.8	24.0	23.2	22.3	21.4	19.6	15.2	8.8
5	****************		24.5	24.1	23.5	22.8	22.1	21.4	20.7	20.0	19.2	17.5	13.6	7.8
6	****************		22.4	22.0	21.4	20.8	20.2	19.6	18.9	18.2	17.5	16.0	12.4	7.1
7	****************		20.7	20.4	19.8	19.3	18.7	18.1	17.5	16.9	16.2	14.8	11.5	6.6
8	************************			19.1	18.6	18.0	17.5	16.9	16.4	15.8	15.2	13.8	10.7	6.2
9	************************			18.0	17.5	17.0	16.5	16.0	15.4	14.9	14.3	13.0	10.1	5.8
10	************************			17.1	16.6	16.1	15.7	15.2	14.6	14.1	13.6	12.4	9.6	5.5
11	************************			16.3	15.8	15.4	14.9	14.5	14.0	13.5	12.9	11.8	9.1	5.3
12	************************			15.6	15.2	14.7	14.3	13.8	13.4	12.9	12.4	11.3	8.8	5.1
13	************************			15.0	14.6	14.2	13.7	13.3	12.8	12.4	11.9	10.9	8.4	4.9
14	************************			14.4	14.0	13.6	13.2	12.8	12.4	11.9	11.5	10.5	8.1	4.7
15	************************			13.9	13.6	13.2	12.8	12.4	12.0	11.5	11.1	10.1	7.8	4.5
16	************************			13.5	13.1	12.8	12.4	12.0	11.6	11.2	10.7	9.8	7.6	4.4
17	************************			13.1	12.7	12.4	12.0	11.6	11.2	10.8	10.4	9.5	7.4	4.2
18	************************			12.7	12.4	12.0	11.7	11.3	10.9	10.5	10.1	9.2	7.1	4.1
19	********************************				12.0	11.7	11.4	11.0	10.6	10.2	9.8	9.0	7.0	4.0
20	********************************				11.7	11.4	11.1	10.7	10.4	10.0	9.6	8.8	6.8	3.9
21	********************************				11.5	11.1	10.8	10.5	10.1	9.7	9.4	8.5	6.6	3.8
22	********************************				11.2	10.9	10.6	10.2	9.9	9.5	9.1	8.3	6.5	3.7
23	********************************				11.0	10.6	10.3	10.0	9.7	9.3	8.9	8.2	6.3	3.7
24	********************************				10.7	10.4	10.1	9.8	9.5	9.1	8.8	8.0	6.2	3.6
25	********************************				10.5	10.2	9.9	9.6	9.3	8.9	8.6	7.8	6.1	3.5
30	********************************				9.6	9.3	9.0	8.8	8.5	8.1	7.8	7.1	5.5	3.2
35	********************************				8.9	8.6	8.4	8.1	7.8	7.5	7.2	6.6	5.1	3.0
40	**					8.1	7.8	7.6	7.3	7.1	6.8	6.2	4.8	2.8
45	**					7.6	7.4	7.1	6.9	6.7	6.4	5.8	4.5	2.6
50	**					7.2	7.0	6.8	6.5	6.3	6.1	5.5	4.3	2.5
55	**					6.9	6.7	6.5	6.2	6.0	5.8	5.3	4.1	2.4
60	**						6.4	6.2	6.0	5.8	5.5	5.1	3.9	2.3
65	**						6.1	5.9	5.7	5.5	5.3	4.9	3.8	2.2
70	**						5.9	5.7	5.5	5.3	5.1	4.7	3.6	2.1
75	**							5.5	5.3	5.2	5.0	4.5	3.5	2.0
80	**							5.4	5.2	5.0	4.8	4.4	3.4	2.0
85	**							5.2	5.0	4.8	4.7	4.2	3.3	1.9
90	**							5.1	4.9	4.7	4.5	4.1	3.2	1.8
95	**								4.8	4.6	4.4	4.0	3.1	1.8
100	**								4.6	4.5	4.3	3.9	3.0	1.8
125	**									4.0	3.8	3.5	2.7	1.6
150	**											3.2	2.5	1.4
200	**												2.1	1.2
250	**												1.9	1.1
300	**													1.0

NOTE: FOR CORRECT USAGE OF THESE TABLES PLEASE REFER TO MICRODATA DOCUMENTATION

HOUSEHOLD INTERNET USE SURVEY - 2002

Approximate Sampling Variability Tables for New Brunswick

NUMERATOR OF PERCENTAGE ('000)	ESTIMATED PERCENTAGE 0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	50.0%	70.0%	90.0%
1	********	47.5	47.2	46.5	45.3	44.0	42.7	41.3	39.9	38.5	37.0	33.7	26.1	15.1
2	********	33.6	33.4	32.9	32.0	31.1	30.2	29.2	28.2	27.2	26.1	23.9	18.5	10.7
3	********	********	27.3	26.9	26.1	25.4	24.6	23.9	23.1	22.2	21.3	19.5	15.1	8.7
4	********	********	23.6	23.3	22.6	22.0	21.3	20.7	20.0	19.2	18.5	16.9	13.1	7.5
5	********	********	21.1	20.8	20.2	19.7	19.1	18.5	17.9	17.2	16.5	15.1	11.7	6.7
6	********	********	********	19.0	18.5	18.0	17.4	16.9	16.3	15.7	15.1	13.8	10.7	6.2
7	********	********	********	17.6	17.1	16.6	16.1	15.6	15.1	14.5	14.0	12.8	9.9	5.7
8	********	********	********	16.4	16.0	15.6	15.1	14.6	14.1	13.6	13.1	11.9	9.2	5.3
9	********	********	********	15.5	15.1	14.7	14.2	13.8	13.3	12.8	12.3	11.2	8.7	5.0
10	********	********	********	14.7	14.3	13.9	13.5	13.1	12.6	12.2	11.7	10.7	8.3	4.8
11	********	********	********	14.0	13.7	13.3	12.9	12.5	12.0	11.6	11.1	10.2	7.9	4.6
12	********	********	********	13.4	13.1	12.7	12.3	11.9	11.5	11.1	10.7	9.7	7.5	4.4
13	********	********	********	12.9	12.6	12.2	11.8	11.5	11.1	10.7	10.3	9.4	7.3	4.2
14	********	********	********	12.4	12.1	11.8	11.4	11.0	10.7	10.3	9.9	9.0	7.0	4.0
15	********	********	********	********	11.7	11.4	11.0	10.7	10.3	9.9	9.5	8.7	6.7	3.9
16	********	********	********	********	11.3	11.0	10.7	10.3	10.0	9.6	9.2	8.4	6.5	3.8
17	********	********	********	********	11.0	10.7	10.4	10.0	9.7	9.3	9.0	8.2	6.3	3.7
18	********	********	********	********	10.7	10.4	10.1	9.7	9.4	9.1	8.7	8.0	6.2	3.6
19	********	********	********	********	10.4	10.1	9.8	9.5	9.2	8.8	8.5	7.7	6.0	3.5
20	********	********	********	********	10.1	9.8	9.5	9.2	8.9	8.6	8.3	7.5	5.8	3.4
21	********	********	********	********	9.9	9.6	9.3	9.0	8.7	8.4	8.1	7.4	5.7	3.3
22	********	********	********	********	9.7	9.4	9.1	8.8	8.5	8.2	7.9	7.2	5.6	3.2
23	********	********	********	********	9.4	9.2	8.9	8.6	8.3	8.0	7.7	7.0	5.5	3.1
24	********	********	********	********	9.2	9.0	8.7	8.4	8.2	7.9	7.5	6.9	5.3	3.1
25	********	********	********	********	9.1	8.8	8.5	8.3	8.0	7.7	7.4	6.7	5.2	3.0
30	********	********	********	********	********	8.0	7.8	7.5	7.3	7.0	6.7	6.2	4.8	2.8
35	********	********	********	********	********	7.4	7.2	7.0	6.7	6.5	6.2	5.7	4.4	2.6
40	********	********	********	********	********	7.0	6.7	6.5	6.3	6.1	5.8	5.3	4.1	2.4
45	********	********	********	********	********	********	6.4	6.2	6.0	5.7	5.5	5.0	3.9	2.2
50	********	********	********	********	********	********	6.0	5.8	5.6	5.4	5.2	4.8	3.7	2.1
55	********	********	********	********	********	********	5.8	5.6	5.4	5.2	5.0	4.6	3.5	2.0
60	********	********	********	********	********	********	********	5.3	5.2	5.0	4.8	4.4	3.4	1.9
65	********	********	********	********	********	********	********	5.1	5.0	4.8	4.6	4.2	3.2	1.9
70	********	********	********	********	********	********	********	4.9	4.8	4.6	4.4	4.0	3.1	1.8
75	********	********	********	********	********	********	********	********	4.6	4.4	4.3	3.9	3.0	1.7
80	********	********	********	********	********	********	********	********	4.5	4.3	4.1	3.8	2.9	1.7
85	********	********	********	********	********	********	********	********	4.3	4.2	4.0	3.7	2.8	1.6
90	********	********	********	********	********	********	********	********	********	4.1	3.9	3.6	2.8	1.6
95	********	********	********	********	********	********	********	********	********	3.9	3.8	3.5	2.7	1.5
100	********	********	********	********	********	********	********	********	********	3.8	3.7	3.4	2.6	1.5
125	********	********	********	********	********	********	********	********	********	********	********	3.0	2.3	1.3
150	********	********	********	********	********	********	********	********	********	********	********	********	2.1	1.2
200	********	********	********	********	********	********	********	********	********	********	********	********	1.8	1.1
250	********	********	********	********	********	********	********	********	********	********	********	********	********	1.0

NOTE: FOR CORRECT USAGE OF THESE TABLES PLEASE REFER TO MICRODATA DOCUMENTATION

HOUSEHOLD INTERNET USE SURVEY - 2002

Approximate Sampling Variability Tables for Quebec

NUMERATOR OF PERCENTAGE ('000)	ESTIMATED PERCENTAGE 0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	50.0%	70.0%	90.0%
1	104.7	104.2	103.7	102.1	99.4	96.6	93.7	90.7	87.6	84.4	81.1	74.1	57.4	33.1
2	74.0	73.7	73.3	72.2	70.3	68.3	66.2	64.1	62.0	59.7	57.4	52.4	40.6	23.4
3	60.4	60.2	59.9	58.9	57.4	55.8	54.1	52.4	50.6	48.8	46.8	42.8	33.1	19.1
4	********	52.1	51.8	51.0	49.7	48.3	46.8	45.4	43.8	42.2	40.6	37.0	28.7	16.6
5	********	46.6	46.4	45.7	44.4	43.2	41.9	40.6	39.2	37.8	36.3	33.1	25.7	14.8
6	********	42.5	42.3	41.7	40.6	39.4	38.2	37.0	35.8	34.5	33.1	30.2	23.4	13.5
7	********	39.4	39.2	38.6	37.6	36.5	35.4	34.3	33.1	31.9	30.7	28.0	21.7	12.5
8	********	36.8	36.7	36.1	35.1	34.1	33.1	32.1	31.0	29.9	28.7	26.2	20.3	11.7
9	********	34.7	34.6	34.0	33.1	32.2	31.2	30.2	29.2	28.1	27.0	24.7	19.1	11.0
10	********	33.0	32.8	32.3	31.4	30.5	29.6	28.7	27.7	26.7	25.7	23.4	18.1	10.5
11	********	31.4	31.3	30.8	30.0	29.1	28.2	27.4	26.4	25.5	24.5	22.3	17.3	10.0
12	********	30.1	29.9	29.5	28.7	27.9	27.0	26.2	25.3	24.4	23.4	21.4	16.6	9.6
13	********	28.9	28.8	28.3	27.6	26.8	26.0	25.2	24.3	23.4	22.5	20.5	15.9	9.2
14	********	27.9	27.7	27.3	26.6	25.8	25.0	24.2	23.4	22.6	21.7	19.8	15.3	8.9
15	********	26.9	26.8	26.4	25.7	24.9	24.2	23.4	22.6	21.8	20.9	19.1	14.8	8.6
16	********	26.1	25.9	25.5	24.8	24.1	23.4	22.7	21.9	21.1	20.3	18.5	14.3	8.3
17	********	25.3	25.1	24.8	24.1	23.4	22.7	22.0	21.3	20.5	19.7	18.0	13.9	8.0
18	********	24.6	24.4	24.1	23.4	22.8	22.1	21.4	20.7	19.9	19.1	17.5	13.5	7.8
19	********	23.9	23.8	23.4	22.8	22.2	21.5	20.8	20.1	19.4	18.6	17.0	13.2	7.6
20	********	23.3	23.2	22.8	22.2	21.6	20.9	20.3	19.6	18.9	18.1	16.6	12.8	7.4
21	********	22.7	22.6	22.3	21.7	21.1	20.4	19.8	19.1	18.4	17.7	16.2	12.5	7.2
22	********	22.2	22.1	21.8	21.2	20.6	20.0	19.3	18.7	18.0	17.3	15.8	12.2	7.1
23	********	21.7	21.6	21.3	20.7	20.1	19.5	18.9	18.3	17.6	16.9	15.4	12.0	6.9
24	********	21.3	21.2	20.8	20.3	19.7	19.1	18.5	17.9	17.2	16.6	15.1	11.7	6.8
25	********	20.8	20.7	20.4	19.9	19.3	18.7	18.1	17.5	16.9	16.2	14.8	11.5	6.6
30	********	19.0	18.9	18.6	18.1	17.6	17.1	16.6	16.0	15.4	14.8	13.5	10.5	6.0
35	****************		17.5	17.3	16.8	16.3	15.8	15.3	14.8	14.3	13.7	12.5	9.7	5.6
40	****************		16.4	16.1	15.7	15.3	14.8	14.3	13.9	13.4	12.8	11.7	9.1	5.2
45	****************		15.5	15.2	14.8	14.4	14.0	13.5	13.1	12.6	12.1	11.0	8.6	4.9
50	****************		14.7	14.4	14.1	13.7	13.2	12.8	12.4	11.9	11.5	10.5	8.1	4.7
55	****************		14.0	13.8	13.4	13.0	12.6	12.2	11.8	11.4	10.9	10.0	7.7	4.5
60	****************		13.4	13.2	12.8	12.5	12.1	11.7	11.3	10.9	10.5	9.6	7.4	4.3
65	************************			12.7	12.3	12.0	11.6	11.3	10.9	10.5	10.1	9.2	7.1	4.1
70	************************			12.2	11.9	11.5	11.2	10.8	10.5	10.1	9.7	8.9	6.9	4.0
75	************************			11.8	11.5	11.2	10.8	10.5	10.1	9.8	9.4	8.6	6.6	3.8
80	************************			11.4	11.1	10.8	10.5	10.1	9.8	9.4	9.1	8.3	6.4	3.7
85	************************			11.1	10.8	10.5	10.2	9.8	9.5	9.2	8.8	8.0	6.2	3.6
90	************************			10.8	10.5	10.2	9.9	9.6	9.2	8.9	8.6	7.8	6.0	3.5
95	************************			10.5	10.2	9.9	9.6	9.3	9.0	8.7	8.3	7.6	5.9	3.4
100	************************			10.2	9.9	9.7	9.4	9.1	8.8	8.4	8.1	7.4	5.7	3.3
125	************************			9.1	8.9	8.6	8.4	8.1	7.8	7.6	7.3	6.6	5.1	3.0
150	************************			8.3	8.1	7.9	7.6	7.4	7.2	6.9	6.6	6.0	4.7	2.7
200	********************************				7.0	6.8	6.6	6.4	6.2	6.0	5.7	5.2	4.1	2.3
250	********************************				6.3	6.1	5.9	5.7	5.5	5.3	5.1	4.7	3.6	2.1
300	********************************				5.7	5.6	5.4	5.2	5.1	4.9	4.7	4.3	3.3	1.9
350	**					5.2	5.0	4.8	4.7	4.5	4.3	4.0	3.1	1.8
400	**					4.8	4.7	4.5	4.4	4.2	4.1	3.7	2.9	1.7
450	**					4.6	4.4	4.3	4.1	4.0	3.8	3.5	2.7	1.6
500	**						4.2	4.1	3.9	3.8	3.6	3.3	2.6	1.5
750	**							3.3	3.2	3.1	3.0	2.7	2.1	1.2
1000	**									2.7	2.6	2.3	1.8	1.0
1500	**											1.9	1.5	0.9
2000	**												1.3	0.7

NOTE: FOR CORRECT USAGE OF THESE TABLES PLEASE REFER TO MICRODATA DOCUMENTATION

HOUSEHOLD INTERNET USE SURVEY - 2002

Approximate Sampling Variability Tables for Ontario

NUMERATOR OF PERCENTAGE ('000)	ESTIMATED PERCENTAGE 0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	50.0%	70.0%	90.0%
1	100.5	100.0	99.5	98.0	95.4	92.7	89.9	87.1	84.1	81.1	77.9	71.1	55.1	31.8
2	71.1	70.7	70.4	69.3	67.4	65.5	63.6	61.6	59.5	57.3	55.1	50.3	38.9	22.5
3	58.0	57.8	57.5	56.6	55.1	53.5	51.9	50.3	48.6	46.8	45.0	41.0	31.8	18.4
4	50.2	50.0	49.8	49.0	47.7	46.3	45.0	43.5	42.1	40.5	38.9	35.5	27.5	15.9
5	********	44.7	44.5	43.8	42.7	41.5	40.2	38.9	37.6	36.3	34.8	31.8	24.6	14.2
6	********	40.8	40.6	40.0	38.9	37.8	36.7	35.5	34.3	33.1	31.8	29.0	22.5	13.0
7	********	37.8	37.6	37.0	36.1	35.0	34.0	32.9	31.8	30.6	29.4	26.9	20.8	12.0
8	********	35.4	35.2	34.6	33.7	32.8	31.8	30.8	29.7	28.7	27.5	25.1	19.5	11.2
9	********	33.3	33.2	32.7	31.8	30.9	30.0	29.0	28.0	27.0	26.0	23.7	18.4	10.6
10	********	31.6	31.5	31.0	30.2	29.3	28.4	27.5	26.6	25.6	24.6	22.5	17.4	10.1
11	********	30.2	30.0	29.5	28.8	27.9	27.1	26.3	25.4	24.4	23.5	21.4	16.6	9.6
12	********	28.9	28.7	28.3	27.5	26.8	26.0	25.1	24.3	23.4	22.5	20.5	15.9	9.2
13	********	27.7	27.6	27.2	26.5	25.7	24.9	24.1	23.3	22.5	21.6	19.7	15.3	8.8
14	********	26.7	26.6	26.2	25.5	24.8	24.0	23.3	22.5	21.7	20.8	19.0	14.7	8.5
15	********	25.8	25.7	25.3	24.6	23.9	23.2	22.5	21.7	20.9	20.1	18.4	14.2	8.2
16	********	25.0	24.9	24.5	23.8	23.2	22.5	21.8	21.0	20.3	19.5	17.8	13.8	7.9
17	********	24.3	24.1	23.8	23.1	22.5	21.8	21.1	20.4	19.7	18.9	17.2	13.4	7.7
18	********	23.6	23.5	23.1	22.5	21.8	21.2	20.5	19.8	19.1	18.4	16.8	13.0	7.5
19	********	23.0	22.8	22.5	21.9	21.3	20.6	20.0	19.3	18.6	17.9	16.3	12.6	7.3
20	********	22.4	22.3	21.9	21.3	20.7	20.1	19.5	18.8	18.1	17.4	15.9	12.3	7.1
21	********	21.8	21.7	21.4	20.8	20.2	19.6	19.0	18.4	17.7	17.0	15.5	12.0	6.9
22	********	21.3	21.2	20.9	20.3	19.8	19.2	18.6	17.9	17.3	16.6	15.2	11.7	6.8
23	********	20.9	20.8	20.4	19.9	19.3	18.8	18.2	17.5	16.9	16.2	14.8	11.5	6.6
24	********	20.4	20.3	20.0	19.5	18.9	18.4	17.8	17.2	16.5	15.9	14.5	11.2	6.5
25	********	20.0	19.9	19.6	19.1	18.5	18.0	17.4	16.8	16.2	15.6	14.2	11.0	6.4
30	********	18.3	18.2	17.9	17.4	16.9	16.4	15.9	15.4	14.8	14.2	13.0	10.1	5.8
35	********	16.9	16.8	16.6	16.1	15.7	15.2	14.7	14.2	13.7	13.2	12.0	9.3	5.4
40	********	15.8	15.7	15.5	15.1	14.7	14.2	13.8	13.3	12.8	12.3	11.2	8.7	5.0
45	********	14.9	14.8	14.6	14.2	13.8	13.4	13.0	12.5	12.1	11.6	10.6	8.2	4.7
50	********	********	14.1	13.9	13.5	13.1	12.7	12.3	11.9	11.5	11.0	10.1	7.8	4.5
55	********	********	13.4	13.2	12.9	12.5	12.1	11.7	11.3	10.9	10.5	9.6	7.4	4.3
60	********	********	12.8	12.7	12.3	12.0	11.6	11.2	10.9	10.5	10.1	9.2	7.1	4.1
65	********	********	12.3	12.2	11.8	11.5	11.2	10.8	10.4	10.1	9.7	8.8	6.8	3.9
70	********	********	11.9	11.7	11.4	11.1	10.7	10.4	10.1	9.7	9.3	8.5	6.6	3.8
75	********	********	11.5	11.3	11.0	10.7	10.4	10.1	9.7	9.4	9.0	8.2	6.4	3.7
80	********	********	11.1	11.0	10.7	10.4	10.1	9.7	9.4	9.1	8.7	7.9	6.2	3.6
85	********	********	10.8	10.6	10.3	10.1	9.8	9.4	9.1	8.8	8.4	7.7	6.0	3.4
90	********	********	10.5	10.3	10.1	9.8	9.5	9.2	8.9	8.5	8.2	7.5	5.8	3.4
95	********	********	********	10.1	9.8	9.5	9.2	8.9	8.6	8.3	8.0	7.3	5.7	3.3
100	********	********	********	9.8	9.5	9.3	9.0	8.7	8.4	8.1	7.8	7.1	5.5	3.2
125	********	********	********	8.8	8.5	8.3	8.0	7.8	7.5	7.3	7.0	6.4	4.9	2.8
150	********	********	********	8.0	7.8	7.6	7.3	7.1	6.9	6.6	6.4	5.8	4.5	2.6
200	********	********	********	6.9	6.7	6.6	6.4	6.2	5.9	5.7	5.5	5.0	3.9	2.2
250	********	********	********	********	6.0	5.9	5.7	5.5	5.3	5.1	4.9	4.5	3.5	2.0
300	********	********	********	********	5.5	5.4	5.2	5.0	4.9	4.7	4.5	4.1	3.2	1.8
350	********	********	********	********	5.1	5.0	4.8	4.7	4.5	4.3	4.2	3.8	2.9	1.7
400	********	********	********	********	4.8	4.6	4.5	4.4	4.2	4.1	3.9	3.6	2.8	1.6
450	********	********	********	********	4.5	4.4	4.2	4.1	4.0	3.8	3.7	3.4	2.6	1.5
500	********	********	********	********	********	4.1	4.0	3.9	3.8	3.6	3.5	3.2	2.5	1.4
750	********	********	********	********	********	********	3.3	3.2	3.1	3.0	2.8	2.6	2.0	1.2
1000	********	********	********	********	********	********	********	2.8	2.7	2.6	2.5	2.2	1.7	1.0
1500	********	********	********	********	********	********	********	********	********	2.1	2.0	1.8	1.4	0.8
2000	********	********	********	********	********	********	********	********	********	********	********	1.6	1.2	0.7
3000	********	********	********	********	********	********	********	********	********	********	********	********	1.0	0.6
4000	********	********	********	********	********	********	********	********	********	********	********	********	********	0.5

NOTE: FOR CORRECT USAGE OF THESE TABLES PLEASE REFER TO MICRODATA DOCUMENTATION

HOUSEHOLD INTERNET USE SURVEY - 2002

Approximate Sampling Variability Tables for Manitoba

NUMERATOR OF PERCENTAGE ('000)	ESTIMATED PERCENTAGE 0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	50.0%	70.0%	90.0%
1	********	51.0	50.8	50.0	48.7	47.3	45.9	44.4	42.9	41.4	39.7	36.3	28.1	16.2
2	********	36.1	35.9	35.4	34.4	33.4	32.4	31.4	30.4	29.2	28.1	25.7	19.9	11.5
3	********	29.5	29.3	28.9	28.1	27.3	26.5	25.7	24.8	23.9	22.9	20.9	16.2	9.4
4	********	25.5	25.4	25.0	24.3	23.6	22.9	22.2	21.5	20.7	19.9	18.1	14.0	8.1
5	****************		22.7	22.4	21.8	21.2	20.5	19.9	19.2	18.5	17.8	16.2	12.6	7.3
6	****************		20.7	20.4	19.9	19.3	18.7	18.1	17.5	16.9	16.2	14.8	11.5	6.6
7	****************		19.2	18.9	18.4	17.9	17.3	16.8	16.2	15.6	15.0	13.7	10.6	6.1
8	****************		18.0	17.7	17.2	16.7	16.2	15.7	15.2	14.6	14.0	12.8	9.9	5.7
9	************************			16.7	16.2	15.8	15.3	14.8	14.3	13.8	13.2	12.1	9.4	5.4
10	************************			15.8	15.4	15.0	14.5	14.0	13.6	13.1	12.6	11.5	8.9	5.1
11	************************			15.1	14.7	14.3	13.8	13.4	12.9	12.5	12.0	10.9	8.5	4.9
12	************************			14.4	14.0	13.7	13.2	12.8	12.4	11.9	11.5	10.5	8.1	4.7
13	************************			13.9	13.5	13.1	12.7	12.3	11.9	11.5	11.0	10.1	7.8	4.5
14	************************			13.4	13.0	12.6	12.3	11.9	11.5	11.1	10.6	9.7	7.5	4.3
15	************************			12.9	12.6	12.2	11.8	11.5	11.1	10.7	10.3	9.4	7.3	4.2
16	************************			12.5	12.2	11.8	11.5	11.1	10.7	10.3	9.9	9.1	7.0	4.1
17	************************			12.1	11.8	11.5	11.1	10.8	10.4	10.0	9.6	8.8	6.8	3.9
18	************************			11.8	11.5	11.1	10.8	10.5	10.1	9.7	9.4	8.6	6.6	3.8
19	************************			11.5	11.2	10.9	10.5	10.2	9.8	9.5	9.1	8.3	6.4	3.7
20	************************			11.2	10.9	10.6	10.3	9.9	9.6	9.2	8.9	8.1	6.3	3.6
21	************************			10.9	10.6	10.3	10.0	9.7	9.4	9.0	8.7	7.9	6.1	3.5
22	********************************				10.4	10.1	9.8	9.5	9.2	8.8	8.5	7.7	6.0	3.5
23	********************************				10.1	9.9	9.6	9.3	9.0	8.6	8.3	7.6	5.9	3.4
24	********************************				9.9	9.7	9.4	9.1	8.8	8.4	8.1	7.4	5.7	3.3
25	********************************				9.7	9.5	9.2	8.9	8.6	8.3	7.9	7.3	5.6	3.2
30	********************************				8.9	8.6	8.4	8.1	7.8	7.6	7.3	6.6	5.1	3.0
35	********************************				8.2	8.0	7.8	7.5	7.3	7.0	6.7	6.1	4.7	2.7
40	********************************				7.7	7.5	7.3	7.0	6.8	6.5	6.3	5.7	4.4	2.6
45	**					7.1	6.8	6.6	6.4	6.2	5.9	5.4	4.2	2.4
50	**					6.7	6.5	6.3	6.1	5.8	5.6	5.1	4.0	2.3
55	**					6.4	6.2	6.0	5.8	5.6	5.4	4.9	3.8	2.2
60	**					6.1	5.9	5.7	5.5	5.3	5.1	4.7	3.6	2.1
65	**						5.7	5.5	5.3	5.1	4.9	4.5	3.5	2.0
70	**						5.5	5.3	5.1	4.9	4.7	4.3	3.4	1.9
75	**						5.3	5.1	5.0	4.8	4.6	4.2	3.2	1.9
80	**						5.1	5.0	4.8	4.6	4.4	4.1	3.1	1.8
85	**						5.0	4.8	4.7	4.5	4.3	3.9	3.0	1.8
90	**							4.7	4.5	4.4	4.2	3.8	3.0	1.7
95	**							4.6	4.4	4.2	4.1	3.7	2.9	1.7
100	**							4.4	4.3	4.1	4.0	3.6	2.8	1.6
125	**								3.8	3.7	3.6	3.2	2.5	1.5
150	**									3.4	3.2	3.0	2.3	1.3
200	**											2.6	2.0	1.1
250	**												1.8	1.0
300	**												1.6	0.9
350	**													0.9

NOTE: FOR CORRECT USAGE OF THESE TABLES PLEASE REFER TO MICRODATA DOCUMENTATION

HOUSEHOLD INTERNET USE SURVEY - 2002

Approximate Sampling Variability Tables for Saskatchewan

NUMERATOR OF PERCENTAGE ('000)	ESTIMATED PERCENTAGE 0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	50.0%	70.0%	90.0%
1	********	44.1	43.9	43.2	42.0	40.8	39.6	38.4	37.1	35.7	34.3	31.3	24.3	14.0
2	********	31.2	31.0	30.5	29.7	28.9	28.0	27.1	26.2	25.3	24.3	22.2	17.2	9.9
3	********	25.5	25.3	24.9	24.3	23.6	22.9	22.2	21.4	20.6	19.8	18.1	14.0	8.1
4	****************		21.9	21.6	21.0	20.4	19.8	19.2	18.5	17.9	17.2	15.7	12.1	7.0
5	****************		19.6	19.3	18.8	18.3	17.7	17.2	16.6	16.0	15.3	14.0	10.9	6.3
6	****************		17.9	17.6	17.2	16.7	16.2	15.7	15.1	14.6	14.0	12.8	9.9	5.7
7	****************		16.6	16.3	15.9	15.4	15.0	14.5	14.0	13.5	13.0	11.8	9.2	5.3
8	***********************			15.3	14.9	14.4	14.0	13.6	13.1	12.6	12.1	11.1	8.6	5.0
9	***********************			14.4	14.0	13.6	13.2	12.8	12.4	11.9	11.4	10.4	8.1	4.7
10	***********************			13.7	13.3	12.9	12.5	12.1	11.7	11.3	10.9	9.9	7.7	4.4
11	***********************			13.0	12.7	12.3	11.9	11.6	11.2	10.8	10.3	9.4	7.3	4.2
12	***********************			12.5	12.1	11.8	11.4	11.1	10.7	10.3	9.9	9.0	7.0	4.0
13	***********************			12.0	11.7	11.3	11.0	10.6	10.3	9.9	9.5	8.7	6.7	3.9
14	***********************			11.5	11.2	10.9	10.6	10.3	9.9	9.5	9.2	8.4	6.5	3.7
15	***********************			11.2	10.9	10.5	10.2	9.9	9.6	9.2	8.9	8.1	6.3	3.6
16	***********************			10.8	10.5	10.2	9.9	9.6	9.3	8.9	8.6	7.8	6.1	3.5
17	***********************			10.5	10.2	9.9	9.6	9.3	9.0	8.7	8.3	7.6	5.9	3.4
18	***********************			10.2	9.9	9.6	9.3	9.0	8.7	8.4	8.1	7.4	5.7	3.3
19	***********************			9.9	9.6	9.4	9.1	8.8	8.5	8.2	7.9	7.2	5.6	3.2
20	*******************************				9.4	9.1	8.9	8.6	8.3	8.0	7.7	7.0	5.4	3.1
21	*******************************				9.2	8.9	8.6	8.4	8.1	7.8	7.5	6.8	5.3	3.1
22	*******************************				9.0	8.7	8.4	8.2	7.9	7.6	7.3	6.7	5.2	3.0
23	*******************************				8.8	8.5	8.3	8.0	7.7	7.4	7.2	6.5	5.1	2.9
24	*******************************				8.6	8.3	8.1	7.8	7.6	7.3	7.0	6.4	5.0	2.9
25	*******************************				8.4	8.2	7.9	7.7	7.4	7.1	6.9	6.3	4.9	2.8
30	*******************************				7.7	7.5	7.2	7.0	6.8	6.5	6.3	5.7	4.4	2.6
35	*******************************				7.1	6.9	6.7	6.5	6.3	6.0	5.8	5.3	4.1	2.4
40	***************************************					6.5	6.3	6.1	5.9	5.6	5.4	5.0	3.8	2.2
45	***************************************					6.1	5.9	5.7	5.5	5.3	5.1	4.7	3.6	2.1
50	***************************************					5.8	5.6	5.4	5.2	5.1	4.9	4.4	3.4	2.0
55	***************************************					5.5	5.3	5.2	5.0	4.8	4.6	4.2	3.3	1.9
60	***						5.1	5.0	4.8	4.6	4.4	4.0	3.1	1.8
65	***						4.9	4.8	4.6	4.4	4.3	3.9	3.0	1.7
70	***						4.7	4.6	4.4	4.3	4.1	3.7	2.9	1.7
75	***						4.6	4.4	4.3	4.1	4.0	3.6	2.8	1.6
80	***							4.3	4.1	4.0	3.8	3.5	2.7	1.6
85	***							4.2	4.0	3.9	3.7	3.4	2.6	1.5
90	***							4.0	3.9	3.8	3.6	3.3	2.6	1.5
95	***							3.9	3.8	3.7	3.5	3.2	2.5	1.4
100	***								3.7	3.6	3.4	3.1	2.4	1.4
125	***									3.2	3.1	2.8	2.2	1.3
150	***										2.8	2.6	2.0	1.1
200	***												1.7	1.0
250	***												1.5	0.9
300	***													0.8

NOTE: FOR CORRECT USAGE OF THESE TABLES PLEASE REFER TO MICRODATA DOCUMENTATION

HOUSEHOLD INTERNET USE SURVEY - 2002

Approximate Sampling Variability Tables for Alberta

NUMERATOR OF PERCENTAGE ('000)	ESTIMATED PERCENTAGE 0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	50.0%	70.0%	90.0%
1	71.2	70.9	70.5	69.4	67.6	65.7	63.7	61.7	59.6	57.4	55.2	50.4	39.0	22.5
2	********	50.1	49.9	49.1	47.8	46.4	45.1	43.6	42.1	40.6	39.0	35.6	27.6	15.9
3	********	40.9	40.7	40.1	39.0	37.9	36.8	35.6	34.4	33.2	31.9	29.1	22.5	13.0
4	********	35.4	35.3	34.7	33.8	32.8	31.9	30.8	29.8	28.7	27.6	25.2	19.5	11.3
5	********	31.7	31.5	31.0	30.2	29.4	28.5	27.6	26.7	25.7	24.7	22.5	17.4	10.1
6	********	28.9	28.8	28.3	27.6	26.8	26.0	25.2	24.3	23.4	22.5	20.6	15.9	9.2
7	********	26.8	26.7	26.2	25.5	24.8	24.1	23.3	22.5	21.7	20.9	19.0	14.7	8.5
8	********	25.1	24.9	24.5	23.9	23.2	22.5	21.8	21.1	20.3	19.5	17.8	13.8	8.0
9	********	23.6	23.5	23.1	22.5	21.9	21.2	20.6	19.9	19.1	18.4	16.8	13.0	7.5
10	********	22.4	22.3	22.0	21.4	20.8	20.1	19.5	18.8	18.2	17.4	15.9	12.3	7.1
11	********	21.4	21.3	20.9	20.4	19.8	19.2	18.6	18.0	17.3	16.6	15.2	11.8	6.8
12	********	********	20.4	20.0	19.5	19.0	18.4	17.8	17.2	16.6	15.9	14.5	11.3	6.5
13	********	********	19.6	19.3	18.7	18.2	17.7	17.1	16.5	15.9	15.3	14.0	10.8	6.2
14	********	********	18.8	18.6	18.1	17.6	17.0	16.5	15.9	15.3	14.7	13.5	10.4	6.0
15	********	********	18.2	17.9	17.4	17.0	16.5	15.9	15.4	14.8	14.2	13.0	10.1	5.8
16	********	********	17.6	17.4	16.9	16.4	15.9	15.4	14.9	14.4	13.8	12.6	9.8	5.6
17	********	********	17.1	16.8	16.4	15.9	15.5	15.0	14.5	13.9	13.4	12.2	9.5	5.5
18	********	********	16.6	16.4	15.9	15.5	15.0	14.5	14.0	13.5	13.0	11.9	9.2	5.3
19	********	********	16.2	15.9	15.5	15.1	14.6	14.2	13.7	13.2	12.7	11.6	9.0	5.2
20	********	********	15.8	15.5	15.1	14.7	14.2	13.8	13.3	12.8	12.3	11.3	8.7	5.0
21	********	********	15.4	15.2	14.7	14.3	13.9	13.5	13.0	12.5	12.0	11.0	8.5	4.9
22	********	********	15.0	14.8	14.4	14.0	13.6	13.2	12.7	12.2	11.8	10.7	8.3	4.8
23	********	********	14.7	14.5	14.1	13.7	13.3	12.9	12.4	12.0	11.5	10.5	8.1	4.7
24	********	********	********	14.2	13.8	13.4	13.0	12.6	12.2	11.7	11.3	10.3	8.0	4.6
25	********	********	********	13.9	13.5	13.1	12.7	12.3	11.9	11.5	11.0	10.1	7.8	4.5
30	********	********	********	12.7	12.3	12.0	11.6	11.3	10.9	10.5	10.1	9.2	7.1	4.1
35	********	********	********	11.7	11.4	11.1	10.8	10.4	10.1	9.7	9.3	8.5	6.6	3.8
40	********	********	********	11.0	10.7	10.4	10.1	9.8	9.4	9.1	8.7	8.0	6.2	3.6
45	********	********	********	10.3	10.1	9.8	9.5	9.2	8.9	8.6	8.2	7.5	5.8	3.4
50	********	********	********	9.8	9.6	9.3	9.0	8.7	8.4	8.1	7.8	7.1	5.5	3.2
55	********	********	********	9.4	9.1	8.9	8.6	8.3	8.0	7.7	7.4	6.8	5.3	3.0
60	********	********	********	********	8.7	8.5	8.2	8.0	7.7	7.4	7.1	6.5	5.0	2.9
65	********	********	********	********	8.4	8.1	7.9	7.7	7.4	7.1	6.8	6.2	4.8	2.8
70	********	********	********	********	8.1	7.8	7.6	7.4	7.1	6.9	6.6	6.0	4.7	2.7
75	********	********	********	********	7.8	7.6	7.4	7.1	6.9	6.6	6.4	5.8	4.5	2.6
80	********	********	********	********	7.6	7.3	7.1	6.9	6.7	6.4	6.2	5.6	4.4	2.5
85	********	********	********	********	7.3	7.1	6.9	6.7	6.5	6.2	6.0	5.5	4.2	2.4
90	********	********	********	********	7.1	6.9	6.7	6.5	6.3	6.1	5.8	5.3	4.1	2.4
95	********	********	********	********	6.9	6.7	6.5	6.3	6.1	5.9	5.7	5.2	4.0	2.3
100	********	********	********	********	6.8	6.6	6.4	6.2	6.0	5.7	5.5	5.0	3.9	2.3
125	********	********	********	********	********	5.9	5.7	5.5	5.3	5.1	4.9	4.5	3.5	2.0
150	********	********	********	********	********	5.4	5.2	5.0	4.9	4.7	4.5	4.1	3.2	1.8
200	********	********	********	********	********	********	4.5	4.4	4.2	4.1	3.9	3.6	2.8	1.6
250	********	********	********	********	********	********	********	3.9	3.8	3.6	3.5	3.2	2.5	1.4
300	********	********	********	********	********	********	********	********	3.4	3.3	3.2	2.9	2.3	1.3
350	********	********	********	********	********	********	********	********	********	3.1	2.9	2.7	2.1	1.2
400	********	********	********	********	********	********	********	********	********	2.9	2.8	2.5	2.0	1.1
450	********	********	********	********	********	********	********	********	********	********	2.6	2.4	1.8	1.1
500	********	********	********	********	********	********	********	********	********	********	********	2.3	1.7	1.0
750	********	********	********	********	********	********	********	********	********	********	********	********	1.4	0.8
1000	********	********	********	********	********	********	********	********	********	********	********	********	********	0.7

NOTE: FOR CORRECT USAGE OF THESE TABLES PLEASE REFER TO MICRODATA DOCUMENTATION

HOUSEHOLD INTERNET USE SURVEY - 2002

Approximate Sampling Variability Tables for British Columbia

NUMERATOR OF PERCENTAGE ('000)	ESTIMATED PERCENTAGE 0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	50.0%	70.0%	90.0%
1	92.2	91.7	91.3	89.9	87.5	85.0	82.5	79.9	77.2	74.3	71.4	65.2	50.5	29.2
2	********	64.9	64.5	63.6	61.9	60.1	58.3	56.5	54.6	52.6	50.5	46.1	35.7	20.6
3	********	53.0	52.7	51.9	50.5	49.1	47.6	46.1	44.5	42.9	41.2	37.6	29.2	16.8
4	********	45.9	45.6	44.9	43.7	42.5	41.2	39.9	38.6	37.2	35.7	32.6	25.3	14.6
5	********	41.0	40.8	40.2	39.1	38.0	36.9	35.7	34.5	33.2	31.9	29.2	22.6	13.0
6	********	37.5	37.3	36.7	35.7	34.7	33.7	32.6	31.5	30.4	29.2	26.6	20.6	11.9
7	********	34.7	34.5	34.0	33.1	32.1	31.2	30.2	29.2	28.1	27.0	24.6	19.1	11.0
8	********	32.4	32.3	31.8	30.9	30.1	29.2	28.2	27.3	26.3	25.3	23.1	17.9	10.3
9	********	30.6	30.4	30.0	29.2	28.3	27.5	26.6	25.7	24.8	23.8	21.7	16.8	9.7
10	********	29.0	28.9	28.4	27.7	26.9	26.1	25.3	24.4	23.5	22.6	20.6	16.0	9.2
11	********	27.7	27.5	27.1	26.4	25.6	24.9	24.1	23.3	22.4	21.5	19.7	15.2	8.8
12	********	26.5	26.4	25.9	25.3	24.5	23.8	23.1	22.3	21.5	20.6	18.8	14.6	8.4
13	********	25.4	25.3	24.9	24.3	23.6	22.9	22.1	21.4	20.6	19.8	18.1	14.0	8.1
14	********	24.5	24.4	24.0	23.4	22.7	22.0	21.3	20.6	19.9	19.1	17.4	13.5	7.8
15	********	23.7	23.6	23.2	22.6	22.0	21.3	20.6	19.9	19.2	18.4	16.8	13.0	7.5
16	********	22.9	22.8	22.5	21.9	21.3	20.6	20.0	19.3	18.6	17.9	16.3	12.6	7.3
17	********	********	22.1	21.8	21.2	20.6	20.0	19.4	18.7	18.0	17.3	15.8	12.2	7.1
18	********	********	21.5	21.2	20.6	20.0	19.4	18.8	18.2	17.5	16.8	15.4	11.9	6.9
19	********	********	20.9	20.6	20.1	19.5	18.9	18.3	17.7	17.1	16.4	15.0	11.6	6.7
20	********	********	20.4	20.1	19.6	19.0	18.4	17.9	17.3	16.6	16.0	14.6	11.3	6.5
21	********	********	19.9	19.6	19.1	18.6	18.0	17.4	16.8	16.2	15.6	14.2	11.0	6.4
22	********	********	19.5	19.2	18.7	18.1	17.6	17.0	16.4	15.9	15.2	13.9	10.8	6.2
23	********	********	19.0	18.7	18.2	17.7	17.2	16.7	16.1	15.5	14.9	13.6	10.5	6.1
24	********	********	18.6	18.3	17.9	17.4	16.8	16.3	15.7	15.2	14.6	13.3	10.3	6.0
25	********	********	18.3	18.0	17.5	17.0	16.5	16.0	15.4	14.9	14.3	13.0	10.1	5.8
30	********	********	16.7	16.4	16.0	15.5	15.1	14.6	14.1	13.6	13.0	11.9	9.2	5.3
35	********	********	********	15.2	14.8	14.4	13.9	13.5	13.0	12.6	12.1	11.0	8.5	4.9
40	********	********	********	14.2	13.8	13.4	13.0	12.6	12.2	11.8	11.3	10.3	8.0	4.6
45	********	********	********	13.4	13.0	12.7	12.3	11.9	11.5	11.1	10.6	9.7	7.5	4.3
50	********	********	********	12.7	12.4	12.0	11.7	11.3	10.9	10.5	10.1	9.2	7.1	4.1
55	********	********	********	12.1	11.8	11.5	11.1	10.8	10.4	10.0	9.6	8.8	6.8	3.9
60	********	********	********	11.6	11.3	11.0	10.6	10.3	10.0	9.6	9.2	8.4	6.5	3.8
65	********	********	********	11.1	10.9	10.5	10.2	9.9	9.6	9.2	8.9	8.1	6.3	3.6
70	********	********	********	10.7	10.5	10.2	9.9	9.5	9.2	8.9	8.5	7.8	6.0	3.5
75	********	********	********	10.4	10.1	9.8	9.5	9.2	8.9	8.6	8.2	7.5	5.8	3.4
80	********	********	********	10.0	9.8	9.5	9.2	8.9	8.6	8.3	8.0	7.3	5.6	3.3
85	********	********	********	********	9.5	9.2	8.9	8.7	8.4	8.1	7.7	7.1	5.5	3.2
90	********	********	********	********	9.2	9.0	8.7	8.4	8.1	7.8	7.5	6.9	5.3	3.1
95	********	********	********	********	9.0	8.7	8.5	8.2	7.9	7.6	7.3	6.7	5.2	3.0
100	********	********	********	********	8.7	8.5	8.2	8.0	7.7	7.4	7.1	6.5	5.1	2.9
125	********	********	********	********	7.8	7.6	7.4	7.1	6.9	6.6	6.4	5.8	4.5	2.6
150	********	********	********	********	7.1	6.9	6.7	6.5	6.3	6.1	5.8	5.3	4.1	2.4
200	********	********	********	********	********	6.0	5.8	5.6	5.5	5.3	5.1	4.6	3.6	2.1
250	********	********	********	********	********	********	5.2	5.1	4.9	4.7	4.5	4.1	3.2	1.8
300	********	********	********	********	********	********	4.8	4.6	4.5	4.3	4.1	3.8	2.9	1.7
350	********	********	********	********	********	********	********	4.3	4.1	4.0	3.8	3.5	2.7	1.6
400	********	********	********	********	********	********	********	4.0	3.9	3.7	3.6	3.3	2.5	1.5
450	********	********	********	********	********	********	********	********	3.6	3.5	3.4	3.1	2.4	1.4
500	********	********	********	********	********	********	********	********	********	3.3	3.2	2.9	2.3	1.3
750	********	********	********	********	********	********	********	********	********	********	********	2.4	1.8	1.1
1000	********	********	********	********	********	********	********	********	********	********	********	********	1.6	0.9

NOTE: FOR CORRECT USAGE OF THESE TABLES PLEASE REFER TO MICRODATA DOCUMENTATION

HOUSEHOLD INTERNET USE SURVEY - 2002

Approximate Sampling Variability Tables for Atlantic

NUMERATOR OF PERCENTAGE ('000)	ESTIMATED PERCENTAGE													
	0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	50.0%	70.0%	90.0%
1	********	50.2	50.0	49.2	47.9	46.6	45.2	43.7	42.3	40.7	39.1	35.7	27.7	16.0
2	********	35.5	35.3	34.8	33.9	32.9	31.9	30.9	29.9	28.8	27.7	25.2	19.6	11.3
3	********	29.0	28.9	28.4	27.7	26.9	26.1	25.2	24.4	23.5	22.6	20.6	16.0	9.2
4	********	25.1	25.0	24.6	24.0	23.3	22.6	21.9	21.1	20.4	19.6	17.9	13.8	8.0
5	********	22.5	22.4	22.0	21.4	20.8	20.2	19.6	18.9	18.2	17.5	16.0	12.4	7.1
6	********	20.5	20.4	20.1	19.6	19.0	18.4	17.9	17.2	16.6	16.0	14.6	11.3	6.5
7	********	19.0	18.9	18.6	18.1	17.6	17.1	16.5	16.0	15.4	14.8	13.5	10.5	6.0
8	********	17.8	17.7	17.4	16.9	16.5	16.0	15.5	14.9	14.4	13.8	12.6	9.8	5.6
9	********	16.7	16.7	16.4	16.0	15.5	15.1	14.6	14.1	13.6	13.0	11.9	9.2	5.3
10	****************		15.8	15.6	15.1	14.7	14.3	13.8	13.4	12.9	12.4	11.3	8.7	5.0
11	****************		15.1	14.8	14.4	14.0	13.6	13.2	12.7	12.3	11.8	10.8	8.3	4.8
12	****************		14.4	14.2	13.8	13.4	13.0	12.6	12.2	11.8	11.3	10.3	8.0	4.6
13	****************		13.9	13.7	13.3	12.9	12.5	12.1	11.7	11.3	10.8	9.9	7.7	4.4
14	****************		13.4	13.2	12.8	12.4	12.1	11.7	11.3	10.9	10.5	9.5	7.4	4.3
15	****************		12.9	12.7	12.4	12.0	11.7	11.3	10.9	10.5	10.1	9.2	7.1	4.1
16	****************		12.5	12.3	12.0	11.6	11.3	10.9	10.6	10.2	9.8	8.9	6.9	4.0
17	****************		12.1	11.9	11.6	11.3	11.0	10.6	10.2	9.9	9.5	8.7	6.7	3.9
18	****************		11.8	11.6	11.3	11.0	10.6	10.3	10.0	9.6	9.2	8.4	6.5	3.8
19	************************			11.3	11.0	10.7	10.4	10.0	9.7	9.3	9.0	8.2	6.3	3.7
20	************************			11.0	10.7	10.4	10.1	9.8	9.4	9.1	8.7	8.0	6.2	3.6
21	************************			10.7	10.5	10.2	9.9	9.5	9.2	8.9	8.5	7.8	6.0	3.5
22	************************			10.5	10.2	9.9	9.6	9.3	9.0	8.7	8.3	7.6	5.9	3.4
23	************************			10.3	10.0	9.7	9.4	9.1	8.8	8.5	8.2	7.4	5.8	3.3
24	************************			10.0	9.8	9.5	9.2	8.9	8.6	8.3	8.0	7.3	5.6	3.3
25	************************			9.8	9.6	9.3	9.0	8.7	8.5	8.1	7.8	7.1	5.5	3.2
30	************************			9.0	8.7	8.5	8.2	8.0	7.7	7.4	7.1	6.5	5.0	2.9
35	************************			8.3	8.1	7.9	7.6	7.4	7.1	6.9	6.6	6.0	4.7	2.7
40	************************			7.8	7.6	7.4	7.1	6.9	6.7	6.4	6.2	5.6	4.4	2.5
45	************************			7.3	7.1	6.9	6.7	6.5	6.3	6.1	5.8	5.3	4.1	2.4
50	********************************				6.8	6.6	6.4	6.2	6.0	5.8	5.5	5.0	3.9	2.3
55	********************************				6.5	6.3	6.1	5.9	5.7	5.5	5.3	4.8	3.7	2.2
60	********************************				6.2	6.0	5.8	5.6	5.5	5.3	5.0	4.6	3.6	2.1
65	********************************				5.9	5.8	5.6	5.4	5.2	5.0	4.9	4.4	3.4	2.0
70	********************************				5.7	5.6	5.4	5.2	5.0	4.9	4.7	4.3	3.3	1.9
75	********************************				5.5	5.4	5.2	5.0	4.9	4.7	4.5	4.1	3.2	1.8
80	********************************				5.4	5.2	5.0	4.9	4.7	4.6	4.4	4.0	3.1	1.8
85	********************************				5.2	5.0	4.9	4.7	4.6	4.4	4.2	3.9	3.0	1.7
90	********************************				5.0	4.9	4.8	4.6	4.5	4.3	4.1	3.8	2.9	1.7
95	**					4.8	4.6	4.5	4.3	4.2	4.0	3.7	2.8	1.6
100	**					4.7	4.5	4.4	4.2	4.1	3.9	3.6	2.8	1.6
125	**					4.2	4.0	3.9	3.8	3.6	3.5	3.2	2.5	1.4
150	**						3.7	3.6	3.4	3.3	3.2	2.9	2.3	1.3
200	**							3.1	3.0	2.9	2.8	2.5	2.0	1.1
250	**								2.7	2.6	2.5	2.3	1.7	1.0
300	**									2.4	2.3	2.1	1.6	0.9
350	**										2.1	1.9	1.5	0.9
400	**											1.8	1.4	0.8
450	**											1.7	1.3	0.8
500	**												1.2	0.7
750	**													0.6

NOTE: FOR CORRECT USAGE OF THESE TABLES PLEASE REFER TO MICRODATA DOCUMENTATION

HOUSEHOLD INTERNET USE SURVEY - 2002

Approximate Sampling Variability Tables for Prairies

NUMERATOR OF PERCENTAGE ('000)	ESTIMATED PERCENTAGE 0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	50.0%	70.0%	90.0%
1	62.1	61.9	61.5	60.6	59.0	57.3	55.6	53.8	52.0	50.1	48.2	44.0	34.1	19.7
2	********	43.7	43.5	42.8	41.7	40.5	39.3	38.1	36.8	35.4	34.1	31.1	24.1	13.9
3	********	35.7	35.5	35.0	34.1	33.1	32.1	31.1	30.0	28.9	27.8	25.4	19.7	11.4
4	********	30.9	30.8	30.3	29.5	28.7	27.8	26.9	26.0	25.1	24.1	22.0	17.0	9.8
5	********	27.7	27.5	27.1	26.4	25.6	24.9	24.1	23.3	22.4	21.5	19.7	15.2	8.8
6	********	25.3	25.1	24.7	24.1	23.4	22.7	22.0	21.2	20.5	19.7	17.9	13.9	8.0
7	********	23.4	23.3	22.9	22.3	21.7	21.0	20.3	19.7	18.9	18.2	16.6	12.9	7.4
8	********	21.9	21.8	21.4	20.9	20.3	19.7	19.0	18.4	17.7	17.0	15.5	12.0	7.0
9	********	20.6	20.5	20.2	19.7	19.1	18.5	17.9	17.3	16.7	16.1	14.7	11.4	6.6
10	********	19.6	19.5	19.2	18.7	18.1	17.6	17.0	16.4	15.8	15.2	13.9	10.8	6.2
11	********	18.7	18.6	18.3	17.8	17.3	16.8	16.2	15.7	15.1	14.5	13.3	10.3	5.9
12	********	17.9	17.8	17.5	17.0	16.5	16.1	15.5	15.0	14.5	13.9	12.7	9.8	5.7
13	********	17.2	17.1	16.8	16.4	15.9	15.4	14.9	14.4	13.9	13.4	12.2	9.4	5.5
14	********	16.5	16.4	16.2	15.8	15.3	14.9	14.4	13.9	13.4	12.9	11.7	9.1	5.3
15	********	16.0	15.9	15.6	15.2	14.8	14.4	13.9	13.4	12.9	12.4	11.4	8.8	5.1
16	********	15.5	15.4	15.1	14.7	14.3	13.9	13.5	13.0	12.5	12.0	11.0	8.5	4.9
17	********	15.0	14.9	14.7	14.3	13.9	13.5	13.1	12.6	12.2	11.7	10.7	8.3	4.8
18	********	14.6	14.5	14.3	13.9	13.5	13.1	12.7	12.3	11.8	11.4	10.4	8.0	4.6
19	********	14.2	14.1	13.9	13.5	13.1	12.8	12.4	11.9	11.5	11.0	10.1	7.8	4.5
20	********	********	13.8	13.5	13.2	12.8	12.4	12.0	11.6	11.2	10.8	9.8	7.6	4.4
21	********	********	13.4	13.2	12.9	12.5	12.1	11.7	11.4	10.9	10.5	9.6	7.4	4.3
22	********	********	13.1	12.9	12.6	12.2	11.9	11.5	11.1	10.7	10.3	9.4	7.3	4.2
23	********	********	12.8	12.6	12.3	12.0	11.6	11.2	10.8	10.5	10.0	9.2	7.1	4.1
24	********	********	12.6	12.4	12.0	11.7	11.4	11.0	10.6	10.2	9.8	9.0	7.0	4.0
25	********	********	12.3	12.1	11.8	11.5	11.1	10.8	10.4	10.0	9.6	8.8	6.8	3.9
30	********	********	11.2	11.1	10.8	10.5	10.2	9.8	9.5	9.2	8.8	8.0	6.2	3.6
35	********	********	10.4	10.2	10.0	9.7	9.4	9.1	8.8	8.5	8.1	7.4	5.8	3.3
40	********	********	********	9.6	9.3	9.1	8.8	8.5	8.2	7.9	7.6	7.0	5.4	3.1
45	********	********	********	9.0	8.8	8.5	8.3	8.0	7.8	7.5	7.2	6.6	5.1	2.9
50	********	********	********	8.6	8.3	8.1	7.9	7.6	7.4	7.1	6.8	6.2	4.8	2.8
55	********	********	********	8.2	8.0	7.7	7.5	7.3	7.0	6.8	6.5	5.9	4.6	2.7
60	********	********	********	7.8	7.6	7.4	7.2	7.0	6.7	6.5	6.2	5.7	4.4	2.5
65	********	********	********	7.5	7.3	7.1	6.9	6.7	6.5	6.2	6.0	5.5	4.2	2.4
70	********	********	********	7.2	7.0	6.9	6.6	6.4	6.2	6.0	5.8	5.3	4.1	2.3
75	********	********	********	7.0	6.8	6.6	6.4	6.2	6.0	5.8	5.6	5.1	3.9	2.3
80	********	********	********	6.8	6.6	6.4	6.2	6.0	5.8	5.6	5.4	4.9	3.8	2.2
85	********	********	********	6.6	6.4	6.2	6.0	5.8	5.6	5.4	5.2	4.8	3.7	2.1
90	********	********	********	6.4	6.2	6.0	5.9	5.7	5.5	5.3	5.1	4.6	3.6	2.1
95	********	********	********	6.2	6.1	5.9	5.7	5.5	5.3	5.1	4.9	4.5	3.5	2.0
100	********	********	********	********	5.9	5.7	5.6	5.4	5.2	5.0	4.8	4.4	3.4	2.0
125	********	********	********	********	5.3	5.1	5.0	4.8	4.7	4.5	4.3	3.9	3.0	1.8
150	********	********	********	********	4.8	4.7	4.5	4.4	4.2	4.1	3.9	3.6	2.8	1.6
200	********	********	********	********	********	4.1	3.9	3.8	3.7	3.5	3.4	3.1	2.4	1.4
250	********	********	********	********	********	3.6	3.5	3.4	3.3	3.2	3.0	2.8	2.2	1.2
300	********	********	********	********	********	********	3.2	3.1	3.0	2.9	2.8	2.5	2.0	1.1
350	********	********	********	********	********	********	3.0	2.9	2.8	2.7	2.6	2.3	1.8	1.1
400	********	********	********	********	********	********	********	2.7	2.6	2.5	2.4	2.2	1.7	1.0
450	********	********	********	********	********	********	********	2.5	2.5	2.4	2.3	2.1	1.6	0.9
500	********	********	********	********	********	********	********	********	2.3	2.2	2.2	2.0	1.5	0.9
750	********	********	********	********	********	********	********	********	********	********	1.8	1.6	1.2	0.7
1000	********	********	********	********	********	********	********	********	********	********	********	********	1.1	0.6
1500	********	********	********	********	********	********	********	********	********	********	********	********	********	0.5

NOTE: FOR CORRECT USAGE OF THESE TABLES PLEASE REFER TO MICRODATA DOCUMENTATION

HOUSEHOLD INTERNET USE SURVEY - 2002

Approximate Sampling Variability Tables for Canada

NUMERATOR OF PERCENTAGE ('000)	ESTIMATED PERCENTAGE 0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	50.0%	70.0%	90.0%
1	91.2	90.8	90.3	88.9	86.5	84.1	81.6	79.0	76.3	73.5	70.7	64.5	50.0	28.8
2	64.5	64.2	63.8	62.9	61.2	59.5	57.7	55.9	54.0	52.0	50.0	45.6	35.3	20.4
3	52.6	52.4	52.1	51.3	50.0	48.6	47.1	45.6	44.1	42.5	40.8	37.2	28.8	16.7
4	45.6	45.4	45.1	44.5	43.3	42.0	40.8	39.5	38.2	36.8	35.3	32.2	25.0	14.4
5	40.8	40.6	40.4	39.8	38.7	37.6	36.5	35.3	34.1	32.9	31.6	28.8	22.3	12.9
6	37.2	37.1	36.9	36.3	35.3	34.3	33.3	32.2	31.2	30.0	28.8	26.3	20.4	11.8
7	34.5	34.3	34.1	33.6	32.7	31.8	30.8	29.9	28.8	27.8	26.7	24.4	18.9	10.9
8	32.2	32.1	31.9	31.4	30.6	29.7	28.8	27.9	27.0	26.0	25.0	22.8	17.7	10.2
9	30.4	30.3	30.1	29.6	28.8	28.0	27.2	26.3	25.4	24.5	23.6	21.5	16.7	9.6
10	28.8	28.7	28.6	28.1	27.4	26.6	25.8	25.0	24.1	23.3	22.3	20.4	15.8	9.1
11	27.5	27.4	27.2	26.8	26.1	25.4	24.6	23.8	23.0	22.2	21.3	19.4	15.1	8.7
12	26.3	26.2	26.1	25.7	25.0	24.3	23.6	22.8	22.0	21.2	20.4	18.6	14.4	8.3
13	********	25.2	25.0	24.7	24.0	23.3	22.6	21.9	21.2	20.4	19.6	17.9	13.9	8.0
14	********	24.3	24.1	23.8	23.1	22.5	21.8	21.1	20.4	19.7	18.9	17.2	13.4	7.7
15	********	23.4	23.3	23.0	22.3	21.7	21.1	20.4	19.7	19.0	18.2	16.7	12.9	7.4
16	********	22.7	22.6	22.2	21.6	21.0	20.4	19.7	19.1	18.4	17.7	16.1	12.5	7.2
17	********	22.0	21.9	21.6	21.0	20.4	19.8	19.2	18.5	17.8	17.1	15.6	12.1	7.0
18	********	21.4	21.3	21.0	20.4	19.8	19.2	18.6	18.0	17.3	16.7	15.2	11.8	6.8
19	********	20.8	20.7	20.4	19.9	19.3	18.7	18.1	17.5	16.9	16.2	14.8	11.5	6.6
20	********	20.3	20.2	19.9	19.3	18.8	18.2	17.7	17.1	16.4	15.8	14.4	11.2	6.4
21	********	19.8	19.7	19.4	18.9	18.4	17.8	17.2	16.7	16.0	15.4	14.1	10.9	6.3
22	********	19.3	19.3	19.0	18.4	17.9	17.4	16.8	16.3	15.7	15.1	13.8	10.7	6.1
23	********	18.9	18.8	18.5	18.0	17.5	17.0	16.5	15.9	15.3	14.7	13.4	10.4	6.0
24	********	18.5	18.4	18.1	17.7	17.2	16.7	16.1	15.6	15.0	14.4	13.2	10.2	5.9
25	********	18.2	18.1	17.8	17.3	16.8	16.3	15.8	15.3	14.7	14.1	12.9	10.0	5.8
30	********	16.6	16.5	16.2	15.8	15.4	14.9	14.4	13.9	13.4	12.9	11.8	9.1	5.3
35	********	15.3	15.3	15.0	14.6	14.2	13.8	13.4	12.9	12.4	11.9	10.9	8.4	4.9
40	********	14.3	14.3	14.1	13.7	13.3	12.9	12.5	12.1	11.6	11.2	10.2	7.9	4.6
45	********	13.5	13.5	13.3	12.9	12.5	12.2	11.8	11.4	11.0	10.5	9.6	7.4	4.3
50	********	12.8	12.8	12.6	12.2	11.9	11.5	11.2	10.8	10.4	10.0	9.1	7.1	4.1
55	********	12.2	12.2	12.0	11.7	11.3	11.0	10.7	10.3	9.9	9.5	8.7	6.7	3.9
60	********	11.7	11.7	11.5	11.2	10.9	10.5	10.2	9.9	9.5	9.1	8.3	6.4	3.7
65	********	11.3	11.2	11.0	10.7	10.4	10.1	9.8	9.5	9.1	8.8	8.0	6.2	3.6
70	********	10.8	10.8	10.6	10.3	10.1	9.8	9.4	9.1	8.8	8.4	7.7	6.0	3.4
75	********	10.5	10.4	10.3	10.0	9.7	9.4	9.1	8.8	8.5	8.2	7.4	5.8	3.3
80	********	10.1	10.1	9.9	9.7	9.4	9.1	8.8	8.5	8.2	7.9	7.2	5.6	3.2
85	********	9.8	9.8	9.6	9.4	9.1	8.8	8.6	8.3	8.0	7.7	7.0	5.4	3.1
90	********	9.6	9.5	9.4	9.1	8.9	8.6	8.3	8.0	7.8	7.4	6.8	5.3	3.0
95	********	9.3	9.3	9.1	8.9	8.6	8.4	8.1	7.8	7.5	7.2	6.6	5.1	3.0
100	********	9.1	9.0	8.9	8.7	8.4	8.2	7.9	7.6	7.4	7.1	6.4	5.0	2.9
125	********	********	8.1	8.0	7.7	7.5	7.3	7.1	6.8	6.6	6.3	5.8	4.5	2.6
150	********	********	7.4	7.3	7.1	6.9	6.7	6.4	6.2	6.0	5.8	5.3	4.1	2.4
200	********	********	6.4	6.3	6.1	5.9	5.8	5.6	5.4	5.2	5.0	4.6	3.5	2.0
250	********	********	********	5.6	5.5	5.3	5.2	5.0	4.8	4.7	4.5	4.1	3.2	1.8
300	********	********	********	5.1	5.0	4.9	4.7	4.6	4.4	4.2	4.1	3.7	2.9	1.7
350	********	********	********	4.8	4.6	4.5	4.4	4.2	4.1	3.9	3.8	3.4	2.7	1.5
400	********	********	********	4.4	4.3	4.2	4.1	3.9	3.8	3.7	3.5	3.2	2.5	1.4
450	********	********	********	4.2	4.1	4.0	3.8	3.7	3.6	3.5	3.3	3.0	2.4	1.4
500	********	********	********	4.0	3.9	3.8	3.6	3.5	3.4	3.3	3.2	2.9	2.2	1.3
750	********	********	********	********	3.2	3.1	3.0	2.9	2.8	2.7	2.6	2.4	1.8	1.1
1000	********	********	********	********	2.7	2.7	2.6	2.5	2.4	2.3	2.2	2.0	1.6	0.9
1500	********	********	********	********	********	2.2	2.1	2.0	2.0	1.9	1.8	1.7	1.3	0.7
2000	********	********	********	********	********	********	1.8	1.8	1.7	1.6	1.6	1.4	1.1	0.6
3000	********	********	********	********	********	********	********	1.4	1.4	1.3	1.3	1.2	0.9	0.5
4000	********	********	********	********	********	********	********	********	********	1.2	1.1	1.0	0.8	0.5
5000	********	********	********	********	********	********	********	********	********	********	********	0.9	0.7	0.4
6000	********	********	********	********	********	********	********	********	********	********	********	0.8	0.6	0.4
7000	********	********	********	********	********	********	********	********	********	********	********	********	0.6	0.3
8000	********	********	********	********	********	********	********	********	********	********	********	********	0.6	0.3
9000	********	********	********	********	********	********	********	********	********	********	********	********	********	0.3
10000	********	********	********	********	********	********	********	********	********	********	********	********	********	0.3

NOTE: FOR CORRECT USAGE OF THESE TABLES PLEASE REFER TO MICRODATA DOCUMENTATION

11.0 Weighting

Since the Household Internet Use Survey (HIUS) used a sub-sample of the Labour Force Survey (LFS) sample, the derivation of weights for the survey records is clearly tied to the weighting procedure used for the LFS. The LFS weighting procedure is briefly described below.

11.1 Weighting Procedures for the Labour Force Survey

In the LFS, the final weight attached to each record is the product of the following factors: the basic weight, the cluster sub-weight, the stabilization weight, the balancing factor for non-response, and the province-age-sex and sub-provincial area ratio adjustment factor. Each is described below.

Basic Weight

In a probability sample, the sample design itself determines weights which must be used to produce unbiased estimates of the population. Each record must be weighted by the inverse of the probability of selecting the person to whom the record refers. In the example of a 2% simple random sample, this probability would be 0.02 for each person and the records must be weighted by 1 / 0.02 = 50. Due to the complex LFS design, dwellings in different regions will have different basic weights. Because all eligible individuals in a dwelling are interviewed (directly or by proxy), this probability is essentially the same as the probability with which the dwelling is selected.

Cluster Sub-weight

The cluster delineation is such that the number of dwellings in the sample increases very slightly with moderate growth in the housing stock. Substantial growth can be tolerated in an isolated cluster before the additional sample represents a field collection problem. However, if growth takes place in more than one cluster in an interviewer assignment, the cumulative effect of all increases may create a workload problem. In clusters where substantial growth has taken place, sub-sampling is used as a means of keeping interviewer assignments manageable. The cluster sub-weight represents the inverse of this sub-sampling ratio in clusters where sub-sampling has occurred.

Stabilization Weight

Sample stabilization is also used to address problems with sample size growth. Cluster sub-sampling addressed isolated growth in relatively small areas whereas sample stabilization accommodates the slow sample growth over time that is the result of a fixed sampling rate along with a general increase in the size of the population. Sample stabilization is the random dropping of dwellings from the sample in order to maintain the sample size at its desired level. The basic weight is adjusted by the ratio of the sample size, based on the fixed sampling rate, to the desired sample size. This adjustment factor is known as the stabilization weight. The adjustment is done within stabilization areas defined as dwellings belonging to the same employment insurance economic region and the same rotation group.

Non-response

For certain types of non-response (i.e. household temporarily absent, refusal), data from a previous month's interview with the household if any, is brought forward and used as the current month's data for the household.

In other cases, non-response is compensated for by proportionally increasing the weights of responding households. The weight of each responding record is increased by the ratio of the number of households that should have been interviewed, divided by the number that were actually interviewed. This adjustment is done separately for non-response areas, which are defined by employment insurance economic region, type of area, and rotation group. It is based on the assumption that the households that have been interviewed represent the characteristics of those that should have been interviewed within a non-response area.

Labour Force Survey Sub-weight

The product of the previously described weighting factors is called the LFS sub-weight. All members of the same sampled dwelling have the same sub-weight.

Sub-provincial and Province-Age-Sex Adjustments

The sub-weight can be used to derive a valid estimate of any characteristic for which information is collected by the LFS. However, these estimates will be based on a frame that contains some information that may be several years out of date and therefore not representative of the current population. Through the use of more up-to-date auxiliary information about the target population, the sample weights are adjusted to improve both the precision of the estimates and the sample’s representation of the current population.

Independent estimates are available monthly for various age and sex groups by province. These are population projections based on the most recent Census data, records of births and deaths, and estimates of migration. In the final step, this auxiliary information is used to transform the sub-weight into the final weight. This is done using a calibration method. This method ensures that the final weights it produces sum to the census projections for the auxiliary variables, namely totals for various age-sex groups, economic regions (ER), census metropolitan areas (CMA), rotation groups, household and economic family size. Weights are also adjusted so that estimates of the previous month’s industry and labour status estimates derived from the present month’s sample, sum up to the corresponding estimates from the previous month’s sample. This is called composite estimation. The entire adjustment is applied using the generalized regression technique.

This final weight is normally not used in the weighting for a supplement to the LFS. Instead, it is the sub-weight which is used, as explained in the following paragraphs.

11.2 Weighting Procedures for the Household Internet Use Survey

The principles behind the calculation of the weights for the HIUS are nearly identical to those for the LFS. However, this survey is a household-weighted survey, not a person-weighted survey. Also, further adjustments are made to the LFS sub-weights in order to derive a final weight for each record on the HIUS microdata file.

1) An adjustment to account for the use of a five-sixths sub-sample, instead of the full LFS sample.

2) An adjustment to account for the additional non-response to the supplementary survey, i.e., households that did not respond to the HIUS but did respond to the LFS (or for which

previous month's LFS data was brought forward). Statistical techniques are used to group together records that are similar in terms of demographic variables obtained from LFS responses. The adjustment is made separately within all non-response groups created for each province.

Adjustments 1) and 2) are taken into account by multiplying the LFS sub-weight for each responding Household Internet Use Survey record by:

$$\frac{\textit{sum of LFS sub-weights from each household responding to LFS}}{\textit{sum of LFS sub-weights from each household responding to the HIUS}}$$

to obtain a non-response adjusted HIUS sub-weight (WEIGHT1). This adjustment is performed at the non-response group level for each province.

3) The final adjustment ensured that estimates produced for a province-household size group would agree with the known population totals for that province-household size group. The adjustments were made for household size groupings of 1, 2 and 3 or more people.

Adjustment 3) is calculated by multiplying WEIGHT1 for each HIUS respondent by:

$$\frac{\textit{known population total for province-household size group}}{\textit{sum of (WEIGHT 1) for responding households in province-household size group}}$$

The resulting weight (HWEIGHT) is the final weight which appears on the HIUS microdata file.

12.0 Questionnaires

12.1 The Labour Force Survey Questionnaire

The Labour Force Survey Questionnaire (LFS_QuestE.pdf) is used to collect information on the current and most recent labour market activity of all household members 15 years of age or older. It includes questions on hours of work, job tenure, type of work, reason for hours lost or absent, job search undertaken, availability for work, and school attendance.

12.2 The Household Internet Use Survey Questionnaire

The Household Internet Use Survey questionnaire was used in January 2003 to collect the information for the supplementary survey. The file HIUS2002_QuestE.pdf contains the English questionnaire.

13.0 Record Layout with Univariate Frequencies

See HIUS2002_CdBk.pdf for the record layout with univariate counts.